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**TABLES AND AN ALGORITHM FOR CALCULATING FUNCTIONAL GROUPS OF ORGANIC
MOLECULES IN HIGH RESOLUTION MASS SPECTROMETRY**

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TABLES AND AN ALGORITHM FOR CALCULATING FUNCTIONAL GROUPS OF ORGANIC MOLECULES IN HIGH RESOLUTION MASS SPECTROMETRY

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Introduction

The pioneering work of Beynon¹ has demonstrated the salient power of high resolution mass spectrometry for the structural analysis of organic molecules. Instruments with resolution capabilities of 1 part in 10,000 to 100,000 are becoming commercially available. There remains the problem of computing the molecular composition from the experimentally found mass. Tables for this purpose have been published² but are necessarily limited in scope by the sheer number of possible combinations.

On the atomic mass scale $^{12}\text{C} = 12.00000$, the fractional mass is attributable exclusively to the non-carbon part of a molecule, so these parts can be tabulated separately and much more compactly than complete tables of composition. Such tables have been computed over the range of H from 0 to 124, N from 0 to 6 and O from 0 to 11, and published elsewhere³ to make them generally accessible.

An alternative approach was also generated, which gives even more compact tables and an algorithm more suitable for computer-oriented analysis, and is presented here.

The $\text{CH}_2=14$ Algorithm

Where molecules in homologous series are in question, or the investigator has a definite combination of functional groups in mind, the $\text{CH}_2=14$ algorithm will more than justify some additional arithmetic on the part of the specialized user. Furthermore, its tables are even more compact: roughly speaking, where an independent variable of the C=12 system is the number of H atoms, plausibly from 0 to 124, in the $\text{CH}_2=14$ system we use degrees of unsaturation from 0 to 30. This permits us to encompass most molecules and radicals, N from 0 to 8 and O from 0 to 13 in Table 2. In addition, the entries appear in an order related to the complexity of the molecule. The topmost, simpler areas of the tables may become quite familiar with extensive use, since e.g. alkanes, monocarboxylic acids, dicarboxylic acids, monoketones, etc. each have a singular location in the tables.

The logic of extracting the formula by division and examining the remainder is similar to that of the C=12 system. However, as Kendrick⁴ has pointed out, using CH_2 as a base relates the formula to the structural

concept of a fundamental hydrocarbon, with functional substituents. Instead of taking C, H, O, N as the variables, we take a formula as Terminal H +



parts, i.e. saturated carbons, double bonds, oxygen, and amino-functions. For computational purposes, $-\text{N}=$ is regarded as $-\text{NH}- + \text{C}:$, $-\text{CH}_2-\text{CH}=\text{N}-$ is treated as $\begin{smallmatrix} \text{H} & \text{H} \\ | & | \\ -\text{C}=\text{C}-\text{NH}- \end{smallmatrix}$. This leads to a mathematical fiction in treating

molecules which have more double bonds than C atoms. "Double bonds" includes rings (equivalent to one double bond each) and $-\text{C}=\text{C}-$ functions (equivalent to two C:), i.e. C: can be read as "degrees of unsaturation" together with an equal number of C atoms.

In principle we can implement this scheme of extracting the CH_2 part by shifting to a mass scale ${}^{12}\text{CH}_2 = 14.00000$, and then dividing by 14. This would be done by multiplying the found mass by $0.99888337 = (14.00000/14.01565)$. We would then tabulate the mass defect, the amount by which the decimal value falls short of an integral mass number. There will be a characteristic defect on this scale for every class of organic compound. A few classes of compounds exemplified by ethane, ethyl radical, and ethylamine have a mass excess, i.e. negative defect, -.01339, -.00669 and -.00753 respectively; i.e. their masses are 30.01339, 29.00669 and 43.00753, respectively, when expressed on the $\text{CH}_2=14$ scale, while higher monologues with n additional CH_2 groups will be precisely 14n larger. In these cases their functional groups fail to overbalance the mass excess of the two terminal hydrogens of the basic structure. Alkenes, C_nH_{2n} , will have a defect of zero.

Other functional groups will have equally characteristic mass defects, simply the sum of the contribution of each part (see Table 3).

In actual computation the multiplier .99888 is clumsy and inefficient. Where m = exact mass on 12 scale, it is better to take m (0.99888337) = $m - .00111663m$, especially as the factor can usually be truncated, and only the decimal corrections need be kept in hand. This will be readily seen in working through the examples. Table 1 calculates the correction from the integer part of the mass (with reasonable precision for most purposes) so the only arithmetic actually needed is to subtract the entry of Table 1 from the observed mass, and use the difference in scanning the main table (Table 2).

Terminal H numbers 2 for complete molecules, 1 for radicals, the latter being signified by * in the table.

Example. An alkaloid analysed to contain about N₄ and O₆ to O₈ returned a mass reading of 718.37430 \pm .00600.

	Quotient	Residue	Decimal
1. From Table 1, 718.37430 =	51 (x 14) + 4	+ .37430	
2. Calculate m (1-0.00111663). From Table 1:			

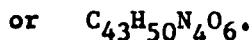
$$\begin{array}{rcl}
 718 & \longrightarrow & 80174^* \\
 .37430 & \longrightarrow & \underline{37430} \\
 \text{Defect} & & 42744 \quad \pm \quad 600
 \end{array}$$

(*The table gives the value for the integer 718. A more precise measure of the defect by interpolation or direct multiplication would be $80216 - 37430 = 42786$; with practice, the interpolation can be done by eye if necessary.)

3. From Table 2, integer residue class 4, the following entries are within the range $42144 - 43344$ and are intact molecules (not*):

Defect	C:	NH	O	$\equiv(\text{CH}_2)_x$
42192	17	8	7	31
42325	12	4	11	27
42378	30	6	0	32
42511	25	2	4	28
42727	8	6	13	28
42779	26	8	2	33
42912	21	4	6	29
43045	16	0	10	25
43314	17	6	8	30

Of these, only 42912 satisfies the compositional requirements with respect to N and O. It may be interpreted as follows:



Extensions

The proper extent of the tables is a compromise between the bulk and cost of a larger table as against the effort of additional arithmetic. The most frequent extension may be in the range of NH, here limited to 8. If so indicated, 9NH can be extracted from the experimental mass by subtracting 135.09809; the entries in the table will then correspond to NH from 9 to 17 in place of 0 to 8.

Further extended versions of the tables can be computed if their utility warrants. Alternatively, other special cases can be handled with the present tables with some additional arithmetic. If additional atoms are suspected, their weights should simply be subtracted from the mass numbers found. E.g., if monochloro compounds are in question, the corresponding dichloro radicals are formed by subtracting ^{35}Cl or ^{37}Cl .

The tables are presented to 5 significant figures, which is an optimistic projection of instrumental capacity. The 5th digit is subject to rounding error of computation. The values refer to the mass of the neutral molecule rather than the positive ion, as the mass of neutral reference molecules is usually set down in calibrating the mass spectrometer.

Constants

The constants used in the computation are (on the ^{12}C scale): H = 1.00782522, N = 14.003074, O = 15.994915. They are taken from the IUPAC report⁵.

Acknowledgments

These tables represent an exercise in the application of computers to biochemical problems. Research connected with this program has been supported by grants from the National Aeronautics and Space Administration (NsG 81-60), National Science Foundation (NSF G-6411), and National Institutes of Health (NB-04270-01 and 02, and AI-5160-06). I am grateful to Professor Carl Djerassi for having challenged the computer to generate the extended tables, to which the present algorithms are a rebuttal.

The programs were run under the Subalgol monitor on the IBM 7090 at Stanford University Computation Center, whose assistance to academic research is supported by an NSF grant (NSF-GP948). I am indebted to the staff of the Computation Center for their unstinting cooperation and to Mrs. Margaret Wightman for skilled and loyal assistance.

The actual operation of these programs required about one second of main frame computer time per page of tabular output.

References

1. J. H. Beynon, Mass Spectrometry and Its Applications to Organic Chemistry, Elsevier, Amsterdam, 1960.
2. J. H. Beynon and A. E. Williams, Mass and Abundance Tables for Use in Mass Spectrometry, Elsevier, Amsterdam, 1963.
3. J. Lederberg, The Computation of Molecular Formulas for Mass Spectrometry, Holden-Day, San Francisco, 1964.
4. Prior to the completion of this report a similar proposal was enunciated by E. Kendrick, A mass scale based on $\text{CH}_2 = 14.0000$ for high resolution mass spectrometry of organic compounds, Analytical Chemistry 35:2146, 1963. His implementation, oriented towards petroleum constituents, is substantially different, but the underlying concept closely anticipates the present scheme.
5. A. E. Cameron and E. Wichers, Report of the International Commission on Atomic Weights (1961), Journal of the American Chemical Society, 84: 4175, 1962.

BALGOL PROGRAM

For Computation of Tables of Mass Defects by Composition

2 MIN3000 LEDERBERG MASSCORRECTIONS..14 ALGORITHM
STANFORD UNIVERSITY COMPILER -- VERSION OF 1/27/64

144... COMMENT*** OUTPUT ON TAPE \$

--SYMBOL

--SPACE

144... COMMENT*** OUTPUT ON TAPE 648\$

144... INTEGER OTHERWISE\$

144... GLOBAL INTEGER COLUMNS\$

144... ARRAY A(2000,10)\$

144... PROCEDURE COLOUT(LINES,COLS \$ VAR,V1,V2,V3 \$ OUT,FORM) \$

156... BEGIN INTEGER OTHERWISE \$ SL = V2.LINES \$

161... M = (COLS-1)SL + V1 \$ COLUMNS = COLS \$ SM = SL + V1 - V2 \$

176... COMMENT WRITES MIN(LINES.COLS , (V3+V2-V1)/V2) OUT'S \$

207... FOR I = (V1,V2,SM) \$ BEGIN

213... UNTIL M LEQ V3 \$ (M = M-SL \$ COLUMNS = COLUMNS-1) \$

224... WRITE(\$\$0, FORM) \$ M = M + V2 END \$

233... RETURN \$ OUTPUT O(FOR VAR=(I,SL,M) \$ OUT())

256... END COLOUT() \$

304... PROCEDURE COLIST(COLS \$ I,I1,I2,I3 \$ OUT, FORM) \$

316... BEGIN INTEGER OTHERWISE \$

316... J = 60 COLS.I2 \$

322... FOR K = (I1, J, I3) \$ COLOUT(60,COLS \$ I,K,I2,I3 \$ OUT,FORM) \$

351... RETURN END COLIST() \$

372... PROCEDURE SORTS(FILL,N , VALUES() , KEY()) \$

--PRINT

*PRINT

664... FOR I=(1,1,1000)\$A(I,9)=I\$

705... FOR M=0,1,13)\$ BEGIN

742... FUNCTION CR(D)=134000D + 58626NH +2294540 - 67000HR\$

751... I=0\$

752... FOR D=0,1,30)\$

763... FOR NH =(0,1,8)\$

776... ((HR=-MOD(M+NH,2)\$

1011... (O = MOD(M + 1398 + 2D - HR - NH,14)/2)) \$

1025... FOR O=0,0+7\$(

1053... SUM = 12D + 15 NH + 16O + 2 + HR\$

1055... J=1\$ I=I+1\$ FOR A(I,J)=CR(D),D,NH,O,HR,SUM/14\$ J=J+1))\$

1162... ILIM=I\$

1164... SORTS(0,ILIM,A(,9),A(,1))\$

1177... ILIM = MIN(ILIM,540)\$

1204... COLIST(3\$ K,1,1,ILIM\$ SOME,NUMBERS)\$

1214... END\$

1215... OUTPUT SOME(FOR I=A(K,9)\$ FOR HR=A(I,5) \$((A(I,1)-133950)/100,

1270... FOR J = 2,3,4,6 \$ A(I,J)))\$

1302... FORMAT NUMBERS(\$COLUMNS\$(B6,L5,B,2I3,I4,B,\$-HR\$('*'),\$1+HR\$(' ')),

1341... I3),W)\$

1341... FINISH\$

TABLE 1. DIVISION BY 14 AND CORRECTION (X.00111663). 0 - 223.

Integer Quo- Mass Correc- Quo- Mass Correc- Quo- Mass Correc- Quo- Mass Correc-

Residue tient No. tion tient No. tion tient No. tion tient No. tion

0		0 00000	4	56 06253	8	112 12506	12	168 18759
1		1 00112		57 06365		113 12618		169 18871
2		2 00223		58 06476		114 12730		170 18983
3		3 00335		59 06588		115 12841		171 19094
4		4 00447		60 06700		116 12953		172 19206
5		5 00558		61 06811		117 13065		173 19318
6		6 00670		62 06923		118 13176		174 19429
7		7 00782		63 07035		119 13288		175 19541
8		8 00893		64 07146		120 13400		176 19653
9		9 01005		65 07258		121 13511		177 19764
10		10 01117		66 07370		122 13623		178 19876
11		11 01228		67 07481		123 13735		179 19988
12		12 01340		68 07593		124 13846		180 20099
13		13 01452		69 07705		125 13958		181 20211
0	1	14 01563	5	70 07816	9	126 14070	13	182 20323
1		15 01675		71 07928		127 14181		183 20434
2		16 01787		72 08040		128 14293		184 20546
3		17 01898		73 08151		129 14405		185 20658
4		18 02010		74 08263		130 14516		186 20769
5		19 02122		75 08375		131 14628		187 20881
6		20 02233		76 08486		132 14740		188 20993
7		21 02345		77 08598		133 14851		189 21104
8		22 02457		78 08710		134 14963		190 21216
9		23 02568		79 08821		135 15075		191 21328
10		24 02680		80 08933		136 15186		192 21439
11		25 02792		81 09045		137 15298		193 21551
12		26 02903		82 09156		138 15409		194 21663
13		27 03015		83 09268		139 15521		195 21774
0	2	28 03127	6	84 09380	10	140 15633	14	196 21886
1		29 03238		85 09491		141 15744		197 21998
2		30 03350		86 09603		142 15856		198 22109
3		31 03462		87 09715		143 15968		199 22221
4		32 03573		88 09826		144 16079		200 22333
5		33 03685		89 09938		145 16191		201 22444
6		34 03797		90 10050		146 16303		202 22556
7		35 03908		91 10161		147 16414		203 22668
8		36 04020		92 10273		148 16526		204 22779
9		37 04132		93 10385		149 16638		205 22891
10		38 04243		94 10496		150 16749		206 23003
11		39 04355		95 10608		151 16861		207 23114
12		40 04467		96 10720		152 16973		208 23226
13		41 04578		97 10831		153 17084		209 23338
0	3	42 04690	7	98 10943	11	154 17196	15	210 23449
1		43 04802		99 11055		155 17308		211 23561
2		44 04913		100 11166		156 17419		212 23673
3		45 05025		101 11278		157 17531		213 23784
4		46 05136		102 11390		158 17643		214 23896
5		47 05248		103 11501		159 17754		215 24008
6		48 05360		104 11613		160 17866		216 24119
7		49 05471		105 11725		161 17978		217 24231
8		50 05583		106 11836		162 18089		218 24343
9		51 05695		107 11948		163 18201		219 24454
10		52 05806		108 12060		164 18313		220 24566
11		53 05918		109 12171		165 18424		221 24678
12		54 06030		110 12283		166 18536		222 24789
13		55 06141		111 12395		167 18648		223 24901

TABLE 1. DIVISION BY 14 AND CORRECTION (X.00111663). 224 - 447.

Integer Residue	Quotient	Mass No.	Correction									
0	16	224	25013	20	280	31266	24	336	37519	28	392	43772
1		225	25124		281	31377		337	37630		393	43884
2		226	25236		282	31489		338	37742		394	43995
3		227	25348		283	31601		339	37854		395	44107
4		228	25459		284	31712		340	37965		396	44219
5		229	25571		285	31824		341	38077		397	44330
6		230	25682		286	31936		342	38189		398	44442
7		231	25794		287	32047		343	38300		399	44554
8		232	25906		288	32159		344	38412		400	44665
9		233	26017		289	32271		345	38524		401	44777
10		234	26129		290	32382		346	38635		402	44889
11		235	26241		291	32494		347	38747		403	45000
12		236	26352		292	32606		348	38859		404	45112
13		237	26464		293	32717		349	38970		405	45224
0	17	238	26576	21	294	32829	25	350	39082	29	406	45335
1		239	26687		295	32941		351	39194		407	45447
2		240	26799		296	33052		352	39305		408	45559
3		241	26911		297	33164		353	39417		409	45670
4		242	27022		298	33276		354	39529		410	45782
5		243	27134		299	33387		355	39640		411	45893
6		244	27246		300	33499		356	39752		412	46005
7		245	27357		301	33611		357	39864		413	46117
8		246	27469		302	33722		358	39975		414	46228
9		247	27581		303	33834		359	40087		415	46340
10		248	27692		304	33946		360	40199		416	46452
11		249	27804		305	34057		361	40310		417	46563
12		250	27916		306	34169		362	40422		418	46675
13		251	28027		307	34281		363	40534		419	46787
0	18	252	28139	22	308	34392	26	364	40645	30	420	46898
1		253	28251		309	34504		365	40757		421	47010
2		254	28362		310	34616		366	40869		422	47122
3		255	28474		311	34727		367	40980		423	47233
4		256	28586		312	34839		368	41092		424	47345
5		257	28697		313	34951		369	41204		425	47457
6		258	28809		314	35062		370	41315		426	47568
7		259	28921		315	35174		371	41427		427	47680
8		260	29032		316	35286		372	41539		428	47792
9		261	29144		317	35397		373	41650		429	47903
10		262	29256		318	35509		374	41762		430	48015
11		263	29367		319	35620		375	41874		431	48127
12		264	29479		320	35732		376	41985		432	48238
13		265	29591		321	35844		377	42097		433	48350
0	19	266	29702	23	322	35955	27	378	42209	31	434	48462
1		267	29814		323	36067		379	42320		435	48573
2		268	29926		324	36179		380	42432		436	48685
3		269	30037		325	36290		381	42544		437	48797
4		270	30149		326	36402		382	42655		438	48908
5		271	30261		327	36514		383	42767		439	49020
6		272	30372		328	36625		384	42879		440	49132
7		273	30484		329	36737		385	42990		441	49243
8		274	30596		330	36849		386	43102		442	49355
9		275	30707		331	36960		387	43214		443	49467
10		276	30819		332	37072		388	43325		444	49578
11		277	30931		333	37184		389	43437		445	49690
12		278	31042		334	37295		390	43549		446	49802
13		279	31154		335	37407		391	43660		447	49913

TABLE 1. DIVISION BY 14 AND CORRECTION (X.00111663). 448 - 671

Integer Residue	Quotient No.	Mass	Correc-									
0	32	448	50025	36	504	56278	40	560	62531	44	616	68784
1		449	50137		505	56390		561	62643		617	68896
2		450	50248		506	56501		562	62755		618	69008
3		451	50360		507	56613		563	62866		619	69119
4		452	50472		508	56725		564	62978		620	69231
5		453	50583		509	56836		565	63090		621	69343
6		454	50695		510	56948		566	63201		622	69454
7		455	50807		511	57060		567	63313		623	69566
8		456	50918		512	57171		568	63425		624	69678
9		457	51030		513	57283		569	63536		625	69789
10		458	51142		514	57395		570	63648		626	69901
11		459	51253		515	57506		571	63760		627	70013
12		460	51365		516	57618		572	63871		628	70124
13		461	51477		517	57730		573	63983		629	70236
0	33	462	51588	37	518	57841	41	574	64095	45	630	70348
1		463	51700		519	57953		575	64206		631	70459
2		464	51812		520	58065		576	64318		632	70571
3		465	51923		521	58176		577	64430		633	70683
4		466	52035		522	58288		578	64541		634	70794
5		467	52147		523	58400		579	64653		635	70906
6		468	52258		524	58511		580	64765		636	71018
7		469	52370		525	58623		581	64876		637	71129
8		470	52482		526	58735		582	64988		638	71241
9		471	52593		527	58846		583	65100		639	71353
10		472	52705		528	58958		584	65211		640	71464
11		473	52817		529	59070		585	65323		641	71576
12		474	52928		530	59181		586	65435		642	71688
13		475	53040		531	59293		587	65546		643	71799
0	34	476	53152	38	532	59405	42	588	65658	46	644	71911
1		477	53263		533	59516		589	65770		645	72023
2		478	53375		534	59628		590	65881		646	72134
3		479	53487		535	59740		591	65993		647	72246
4		480	53598		536	59851		592	66104		648	72358
5		481	53710		537	59963		593	66216		649	72469
6		482	53822		538	60075		594	66328		650	72581
7		483	53933		539	60186		595	66439		651	72693
8		484	54045		540	60298		596	66551		652	72804
9		485	54157		541	60410		597	66663		653	72916
10		486	54268		542	60521		598	66774		654	73028
11		487	54380		543	60633		599	66886		655	73139
12		488	54492		544	60745		600	66998		656	73251
13		489	54603		545	60856		601	67109		657	73363
0	35	490	54715	39	546	60968	43	602	67221	47	658	73474
1		491	54827		547	61080		603	67333		659	73586
2		492	54938		548	61191		604	67444		660	73698
3		493	55050		549	61303		605	67556		661	73809
4		494	55162		550	61415		606	67668		662	73921
5		495	55273		551	61526		607	67779		663	74033
6		496	55385		552	61638		608	67891		664	74144
7		497	55497		553	61750		609	68003		665	74256
8		498	55608		554	61861		610	68114		666	74368
9		499	55720		555	61973		611	68226		667	74479
10		500	55832		556	62085		612	68338		668	74591
11		501	55943		557	62196		613	68449		669	74703
12		502	56055		558	62308		614	68561		670	74814
13		503	56166		559	62420		615	68673		671	74926

TABLE 1. DIVISION BY 14 AND CORRECTION (X.00111663). 672 - 895

Integer Residue	Quotient	Mass No.	Correction									
0	48	672	75038	52	728	81291	56	784	87544	60	840	93797
1		673	75149		729	81402		785	87655		841	93909
2		674	75261		730	81514		786	87767		842	94020
3		675	75373		731	81626		787	87879		343	94132
4		676	75484		732	81737		788	87990		844	94244
5		677	75596		733	81849		789	88102		845	94355
6		678	75708		734	81961		790	88214		846	94467
7		679	75819		735	82072		791	88325		847	94579
8		680	75931		736	82184		792	88437		848	94690
9		681	76043		737	82296		793	88549		849	94802
10		682	76154		738	82407		794	88660		850	94914
11		683	76266		739	82519		795	88772		851	95025
12		684	76377		740	82631		796	88884		852	95137
13		685	76489		741	82742		797	88995		853	95249
0	49	686	76601	53	742	82854	57	798	89107	61	854	95360
1		687	76712		743	82966		799	89219		855	95472
2		688	76824		744	83077		800	89330		856	95584
3		689	76936		745	83189		801	89442		857	95695
4		690	77047		746	83301		802	89554		858	95807
5		691	77159		747	83412		803	89665		859	95919
6		692	77271		748	83524		804	89777		860	96030
7		693	77382		749	83636		805	89889		861	96142
8		694	77494		750	83747		806	90000		862	96254
9		695	77606		751	83859		807	90112		863	96365
10		696	77717		752	83971		808	90224		864	96477
11		697	77829		753	84082		809	90335		865	96588
12		698	77941		754	84194		810	90447		866	96700
13		699	78052		755	84306		811	90559		867	96812
0	50	700	78164	54	756	84417	58	812	90670	62	868	96923
1		701	78276		757	84529		813	90782		869	97035
2		702	78387		758	84641		814	90894		870	97147
3		703	78499		759	84752		815	91005		871	97258
4		704	78611		760	84864		816	91117		872	97370
5		705	78722		761	84976		817	91229		873	97482
6		706	78834		762	85087		818	91340		874	97593
7		707	78946		763	85199		819	91452		875	97705
8		708	79057		764	85311		820	91564		876	97817
9		709	79169		765	85422		821	91675		877	97928
10		710	79281		766	85534		822	91787		878	98040
11		711	79392		767	85646		823	91899		879	98152
12		712	79504		768	85757		824	92010		880	98263
13		713	79616		769	85869		825	92122		881	98375
0	51	714	79727	55	770	85981	59	826	92234	63	382	98487
1		715	79839		771	86092		827	92345		883	98598
2		716	79951		772	86204		828	92457		884	98710
3		717	80062		773	86315		829	92569		885	98822
4		718	80174		774	86427		830	92680		886	98933
5		719	80286		775	86539		831	92792		887	99045
6		720	80397		776	86650		832	92904		888	99157
7		721	80509		777	86762		833	93015		889	99268
8		722	80621		778	86874		834	93127		890	99380
9		723	80732		779	86985		835	93239		891	99492
10		724	80844		780	87097		836	93350		892	99603
11		725	80956		781	87209		837	93462		893	99715
12		726	81067		782	87320		838	93574		894	99827
13		727	81179		783	87432		839	93685		895	99938

Table 2

**TABLES OF CALCULATED MASS DEFECTS
FOR INTEGER RESIDUES**

0 - 13

The integer residue class is indicated as:

Integer Residue Class

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	0 -H	-(CH ₂)		C:	NH	0 -H	-(CH ₂)		C:	NH	0 -H	-(CH ₂)
00000	1	0	0	1	16330	2	6	5	14	23651	16	1	1	* 16
01256	1	1	0 *	2	16649	10	0	2	11	23785	17	4	0	19
02513	2	2	0	4	16783	10	3	1 *	13	23918	12	0	4	15
03635	2	0	1	3	16918	11	6	0	16	24001	0	8	9	19
03769	2	3	0 *	5	17051	6	2	4	12	24052	12	3	3 *	17
04891	2	1	1 *	4	17185	6	5	3 *	14	24187	13	6	2	20
05025	3	4	0	7	17318	1	1	7 *	10	24320	8	2	6	16
06147	3	2	1	6	17319	7	8	2	17	24454	8	5	5 *	18
06281	3	5	0 *	8	17452	2	4	6	13	24587	3	1	9 *	14
07269	3	0	2	5	17587	2	7	5 *	15	24588	9	8	4	21
07403	3	3	1 *	7	17905	10	1	2 *	12	24721	4	4	8	17
07538	4	6	0	10	18040	11	4	1	15	24856	4	7	7 *	19
07939	0	8	2	11	18173	6	0	5	11	24907	17	2	1	18
08525	3	1	2 *	6	18174	11	7	0 *	17	25041	17	5	0 *	20
08660	4	4	1	9	18307	6	3	4 *	13	25123	0	6	10	18
08794	4	7	0 *	11	18441	7	6	3	16	25174	12	1	4 *	16
09061	0	6	3	10	18574	2	2	7	12	25309	13	4	3	19
09380	8	0	0	7	18709	2	5	6 *	14	25442	8	0	7	15
09782	4	2	2	8	18760	15	0	0	13	25443	13	7	2 *	21
09916	4	5	1 *	10	18843	3	8	5	17	25576	8	3	6 *	17
10050	5	8	0	13	19162	11	2	2	14	25710	9	6	5	20
10183	0	4	4	9	19296	11	5	1 *	16	25843	4	2	9	16
10317	0	7	3 *	11	19429	6	1	5 *	12	25978	4	5	8 *	18
10636	8	1	0 *	8	19430	12	8	0	19	26029	17	0	2	17
10904	4	0	3	7	19563	7	4	4	15	26112	5	8	7	21
11038	4	3	2 *	9	19696	2	0	8	11	26163	17	3	1 *	19
11172	5	6	1	12	19697	7	7	3 *	17	26245	0	4	11	17
11305	0	2	5	8	19831	2	3	7 *	13	26298	18	6	0	22
11439	0	5	4 *	10	19965	3	6	6	16	26379	0	7	10 *	19
11574	1	8	3	13	20016	15	1	0 *	14	26431	13	2	4	18
11893	9	2	0	10	20284	11	0	3	13	26565	13	5	3 *	20
12160	4	1	3 *	8	20418	11	3	2 *	15	26698	8	1	7 *	16
12294	5	4	2	11	20552	12	6	1	18	26699	14	8	2	23
12427	0	0	6	7	20685	7	2	5	14	26832	9	4	6	19
12428	5	7	1 *	13	20819	7	5	4 *	16	26965	4	0	10	15
12561	0	3	5 *	9	20953	2	1	8 *	12	26967	9	7	5 *	21
12696	1	6	4	12	20954	8	8	3	19	27100	4	3	9 *	17
13015	9	0	1	9	21087	3	4	7	15	27234	5	6	8	20
13149	9	3	0 *	11	21221	3	7	6 *	17	27285	17	1	2 *	18
13416	5	2	3	10	21273	16	2	0	16	27367	0	2	12	16
13550	5	5	2 *	12	21540	11	1	3 *	14	27420	18	4	1	21
13684	0	1	6 *	8	21674	12	4	2	17	27501	0	5	11 *	18
13685	6	8	1	15	21807	7	0	6	13	27553	13	0	5	17
13818	1	4	5	11	21808	12	7	1 *	19	27554	18	7	0 *	23
13952	1	7	4 *	13	21941	7	3	5 *	15	27635	1	8	10	21
14271	9	1	1 *	10	22076	8	6	4	18	27687	13	3	4 *	19
14405	10	4	0	13	22209	3	2	8	14	27821	14	6	3	22
14538	5	0	4	9	22343	3	5	7 *	16	27954	9	2	7	18
14672	5	3	3 *	11	22395	16	0	1	15	28089	9	5	6 *	20
14807	6	6	2	14	22477	4	8	6	19	28140	22	0	0	19
14940	1	2	6	10	22529	16	3	0 *	17	28222	4	1	10 *	16
15074	1	5	5 *	12	22796	12	2	3	16	28223	10	8	5	23
15208	2	8	4	15	22930	12	5	2 *	18	28356	5	4	9	19
15527	10	2	1	12	23064	7	1	6 *	14	28489	0	0	13	15
15661	10	5	0 *	14	23065	13	8	1	21	28490	5	7	8 *	21
15794	5	1	4 *	10	23198	8	4	5	17	28542	18	2	2	20
15929	6	4	3	13	23331	3	0	9	13	28623	0	3	12 *	17
16062	1	0	7	9	23332	8	7	4 *	19	28676	18	5	1	* 22
16063	6	7	2 *	15	23465	3	3	8 *	15	28758	1	6	11	20
16196	1	3	6 *	11	23599	4	6	7	18	28809	13	1	5 *	18

Integer Residue Class 0-A

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x			
28810	19	8	0	25	33432	19	3	3 *	23	37922	25	2	2	26
28943	14	4	4	21	33514	2	4	13	21	38003	7	3	12 *	23
29076	9	0	8	17	33567	20	6	2	26	38056	25	5	1 *	28
29077	14	7	3 *	23	33648	2	7	12 *	23	38138	8	6	11	26
29211	9	3	7 *	19	33700	15	2	6	22	38189	20	1	5 *	24
29345	10	6	6	22	33834	15	5	5 *	24	38190	26	8	0	31
29396	22	1	0 *	20	33967	10	1	9 *	20	38323	21	4	4	27
29478	5	2	10	18	33968	16	8	4	27	38456	16	0	8	23
29612	5	5	9 *	20	34101	11	4	8	23	38457	21	7	3 *	29
29664	18	0	3	19	34234	6	0	12	19	38539	4	8	13	27
29745	0	1	13 *	16	34236	11	7	7 *	25	38591	16	3	7 *	25
29746	6	8	8	23	34287	24	2	1	24	38725	17	6	6	28
29798	18	3	2	21	34369	6	3	11 *	21	38776	29	1	0 *	26
29880	1	4	12	19	34421	24	5	0 *	26	38858	12	2	10	24
29932	19	6	1	24	34503	7	6	10	24	38992	12	5	9 *	26
30014	1	7	11 *	21	34554	19	1	4 *	22	39044	25	0	3	25
30065	14	2	5	20	34689	20	4	3	25	39125	7	1	13 *	22
30199	14	5	4 *	22	34770	2	5	13 *	22	39126	13	8	8	29
30333	9	1	8 *	18	34822	15	0	7	21	39178	25	3	2 *	27
30334	15	8	3	25	34823	20	7	2 *	27	39260	8	4	12	25
30467	10	4	7	21	34905	3	8	12	25	39312	26	6	1	30
30600	5	0	11	17	34956	15	3	6 *	23	39394	8	7	11 *	27
30601	10	7	6 *	23	35090	16	6	5	26	39445	21	2	5	26
30653	23	2	0	22	35223	11	2	9	22	39579	21	5	4 *	28
30734	5	3	10 *	19	35358	11	5	8 *	24	39713	16	1	8 *	24
30868	6	6	9	22	35409	24	0	2	23	39714	22	8	3	31
30920	18	1	3 *	20	35491	6	1	12 *	20	39847	17	4	7	27
31002	1	2	13	18	35492	12	8	7	27	39980	12	0	11	23
31054	19	4	2	23	35543	24	3	1 *	25	39981	17	7	6 *	29
31136	1	5	12 *	20	35625	7	4	11	23	40033	30	2	0	28
31187	14	0	6	19	35678	25	6	0	28	40114	12	3	10 *	25
31188	19	7	1 *	25	35759	7	7	10 *	25	40248	13	6	9	28
31270	2	8	11	23	35811	20	2	4	24	40300	25	1	3 *	26
31321	14	3	5 *	21	35945	20	5	3 *	26	40382	8	2	13	24
31456	15	6	4	24	36027	3	6	13	24	40434	26	4	2	29
31589	10	2	8	20	36078	15	1	7 *	22	40516	8	5	12 *	26
31723	10	5	7 *	22	36079	21	8	2	29	40567	21	0	6	25
31775	23	0	1	21	36212	16	4	6	25	40568	26	7	1 *	31
31856	5	1	11 *	18	36345	11	0	10	21	40650	9	8	11	29
31857	11	8	6	25	36347	16	7	5 *	27	40701	21	3	5 *	27
31909	23	3	0 *	23	36480	11	3	9 *	23	40836	22	6	4	30
31990	6	4	10	21	36614	12	6	8	26	40969	17	2	8	26
32125	6	7	9 *	23	36665	24	1	2 *	24	41103	17	5	7 *	28
32176	19	2	3	22	36747	7	2	12	22	41155	30	0	1	27
32258	1	3	13 *	19	36800	25	4	1	27	41236	12	1	11 *	24
32310	19	5	2	24	36881	7	5	11 *	24	41237	18	8	6	31
32392	2	6	12	22	36933	20	0	5	23	41289	30	3	0 *	29
32444	14	1	6 *	20	36934	25	7	0 *	29	41370	13	4	10	27
32445	20	8	1	27	37015	8	8	10	27	41505	13	7	9 *	29
32578	15	4	5	23	37067	20	3	4 *	25	41556	26	2	3	28
32711	10	0	9	19	37201	21	6	3	28	41638	8	3	13 *	25
32712	15	7	4 *	25	37283	3	7	13 *	25	41690	26	5	2 *	30
32845	10	3	8 *	21	37334	16	2	7	24	41772	9	6	12	28
32979	11	6	7	24	37469	16	5	6 *	26	41824	21	1	6 *	26
33031	23	1	1 *	22	37520	29	0	0	25	41825	27	8	1	33
33112	6	2	11	20	37602	11	1	10 *	22	41958	22	4	5	29
33165	24	4	0	25	37603	17	8	5	29	42091	17	0	9	25
33247	6	5	10 *	22	37736	12	4	9	25	42092	22	7	4 *	31
33298	19	0	4	21	37869	7	0	13	21	42225	17	3	8 *	27
33381	7	8	9	25	37870	12	7	8 *	27	42359	18	6	7	30

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x						
42411	30	1	1	*	28	47836	23	0	8	29	54118	25	5	8	*	36	
42492	13	2	11	*	26	47837	28	7	3	*	35	54251	20	1	12	*	32
42627	13	5	10	*	28	47919	11	8	13	*	33	54252	26	8	7	*	39
42678	26	0	4		27	47971	23	3	7	*	31	54385	21	4	11		35
42761	14	8	9		31	48105	24	6	6		34	54519	21	7	10	*	37
42812	26	3	3	*	29	48238	19	2	10		30	54787	17	6	13		36
42894	9	4	13		27	48372	19	5	9	*	32	54838	29	1	7	*	34
42947	27	6	2		32	48505	14	1	13	*	28	54972	30	4	6		37
43028	9	7	12	*	29	48506	20	8	8		35	55105	25	0	10		33
43080	22	2	6		28	48640	15	4	12		31	55107	30	7	5	*	39
43214	22	5	5	*	30	48774	15	7	11	*	33	55240	25	3	9	*	35
43347	17	1	9	*	26	48825	28	2	5		32	55374	26	6	8		38
43348	23	8	4		33	48959	28	5	4	*	34	55507	21	2	12		34
43481	18	4	8		29	49093	23	1	8	*	30	55641	21	5	11	*	36
43614	13	0	12		25	49094	29	8	3		37	55775	22	8	10		39
43616	18	7	7	*	31	49227	24	4	7		33	56043	17	7	13	*	37
43749	13	3	11	*	27	49360	19	0	11		29	56094	30	2	7		36
43883	14	6	10		30	49361	24	7	6	*	35	56229	30	5	6	*	38
43934	26	1	4	*	28	49494	19	3	10	*	31	56362	25	1	10	*	34
44069	27	4	3		31	49628	20	6	9		34	56496	26	4	9		37
44150	9	5	13	*	28	49762	15	2	13		30	56629	21	0	13		33
44202	22	0	7		27	49896	15	5	12	*	32	56630	26	7	8	*	39
44203	27	7	2	*	33	49947	28	0	6		31	56763	21	3	12	*	35
44285	10	8	12		31	50030	16	8	11		35	56898	22	6	11		38
44336	22	3	6	*	29	50081	28	3	5	*	33	57216	30	0	8		35
44470	23	6	5		32	50216	29	6	4		36	57299	18	8	13		39
44603	18	2	9		28	50349	24	2	8		32	57351	30	3	7	*	37
44738	18	5	8	*	30	50483	24	5	7	*	34	57618	26	2	10		36
44871	13	1	12	*	26	50616	19	1	11	*	30	57752	26	5	9	*	38
44872	19	8	7		33	50617	25	8	6		37	57885	21	1	13	*	34
45005	14	4	11		29	50750	20	4	10		33	57886	27	8	8		41
45139	14	7	10	*	31	50885	20	7	9	*	35	58020	22	4	12		37
45191	27	2	4		30	51018	15	3	13	*	31	58154	22	7	11	*	39
45325	27	5	3	*	32	51152	16	6	12		34	58473	30	1	8	*	36
45407	10	6	13		30	51204	28	1	6	*	32	58740	26	0	11		35
45458	22	1	7	*	28	51338	29	4	5		35	58874	26	3	10	*	37
45459	28	8	2		35	51471	24	0	9		31	59008	27	6	9		40
45592	23	4	6		31	51472	29	7	4	*	37	59142	22	2	13		36
45725	18	0	10		27	51605	24	3	8	*	33	59276	22	5	12	*	38
45727	23	7	5	*	33	51739	25	6	7		36	59410	23	8	11		41
45860	18	3	9	*	29	51872	20	2	11		32	59996	26	1	11	*	36
45994	19	6	8		32	52007	20	5	10	*	34	60130	27	4	10		39
46127	14	2	12		28	52141	21	8	9		37	60265	27	7	9	*	41
46261	14	5	11	*	30	52274	16	4	13		33	60398	22	3	13	*	37
46313	27	0	5		29	52408	16	7	12	*	35	60532	23	6	12		40
46395	15	8	10		33	52460	29	2	6		34	61252	27	2	11		38
46447	27	3	4	*	31	52594	29	5	5	*	36	61387	27	5	10	*	40
46581	28	6	3		34	52727	24	1	9	*	32	61521	28	8	9		43
46663	10	7	13	*	31	52728	30	8	4		39	61654	23	4	13		39
46714	23	2	7		30	52861	25	4	8		35	61788	23	7	12	*	41
46849	23	5	6	*	32	52994	20	0	12		31	62374	27	0	12		37
46982	18	1	10	*	28	52996	25	7	7	*	37	62509	27	3	11	*	39
46983	24	8	5		35	53129	20	3	11	*	33	62643	28	6	10		42
47116	19	4	9		31	53263	21	6	10		36	62910	23	5	13	*	40
47249	14	0	13		27	53530	16	5	13	*	34	63045	24	8	12		43
47250	19	7	8	*	33	53582	29	0	7		33	63631	27	1	12	*	38
47383	14	3	12	*	29	53665	17	8	12		37	63765	28	4	11		41
47518	15	6	11		32	53716	29	3	6	*	35	63899	28	7	10	*	43
47569	27	1	5	*	30	53850	30	6	5		38	64167	24	6	13		42
47703	28	4	4		33	53983	25	2	9		34	64887	28	2	12		40

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	-(CH ₂)		C:	NH	O -H	-(CH ₂)		C:	NH	O -H	-(CH ₂)
-0669	0	0	0 *	0	16515	6	5	3	14	23650	7	2	6 *	15
00586	1	1	0	2	16648	1	1	7	10	23784	8	5	5	18
01843	1	2	0 *	3	16649	6	8	2 *	16	23917	3	1	9	14
02965	1	0	1 *	2	16782	1	4	6 *	12	23918	8	8	4 *	20
03099	2	3	0	5	16917	2	7	5	15	24051	3	4	8 *	16
04221	2	1	1	4	17235	10	1	2	12	24186	4	7	7	19
04355	2	4	0 *	6	17370	10	4	1 *	14	24237	16	2	1 *	17
05477	2	2	1 *	5	17503	5	0	5 *	10	24371	17	5	0	20
05611	3	5	0	8	17504	11	7	0	17	24504	12	1	4	16
06599	2	0	2 *	4	17637	6	3	4	13	24639	12	4	3 *	18
06733	3	3	1	7	17771	6	6	3 *	15	24772	7	0	7 *	14
06868	3	6	0 *	9	17904	1	2	7 *	11	24773	13	7	2	21
07855	3	1	2	6	18039	2	5	6	14	24906	8	3	6	17
07990	3	4	1 *	8	18090	14	0	0 *	12	25040	8	6	5 *	19
08124	4	7	0	11	18173	2	8	5 *	16	25173	3	2	9 *	15
08710	7	0	0 *	6	18492	10	2	2	13	25308	4	5	8	18
09112	3	2	2 *	7	18626	11	5	1	16	25359	16	0	2 *	16
09246	4	5	1	10	18759	6	1	5	12	25442	4	8	7 *	20
09380	4	8	0 *	12	18760	11	8	0 *	18	25493	17	3	1	19
09647	0	7	3	11	18893	6	4	4 *	14	25628	17	6	0 *	21
09966	8	1	0	8	19026	1	0	8 *	10	25709	0	7	10	19
10234	3	0	3 *	6	19027	7	7	3	17	25761	12	2	4 *	17
10368	4	3	2	9	19161	2	3	7	13	25895	13	5	3	20
10502	4	6	1 *	11	19295	2	6	6 *	15	26028	8	1	7	16
10769	0	5	4	10	19346	15	1	0	14	26029	13	8	2 *	22
10904	0	8	3 *	12	19614	10	0	3 *	12	26162	8	4	6 *	18
11223	8	2	0 *	9	19748	11	3	2	15	26295	3	0	10 *	14
11490	4	1	3	8	19882	11	6	1 *	17	26297	9	7	5	21
11624	4	4	2 *	10	20015	6	2	5 *	13	26430	4	3	9	17
11758	5	7	1	13	20149	7	5	4	16	26564	4	6	8 *	19
11891	0	3	5	9	20283	2	1	8	12	26615	17	1	2	18
12026	0	6	4 *	11	20284	7	8	3 *	18	26750	17	4	1 *	20
12345	8	0	1 *	8	20417	2	4	7 *	14	26831	0	5	11	18
12479	9	3	0	11	20551	3	7	6	17	26883	12	0	5 *	16
12746	4	2	3 *	9	20603	15	2	0 *	15	26884	18	7	0	23
12880	5	5	2	12	20870	11	1	3	14	26965	0	8	10 *	20
13014	0	1	6	8	21004	11	4	2 *	16	27017	13	3	4	19
13015	5	8	1 *	14	21137	6	0	6 *	12	27151	13	6	3 *	21
13148	0	4	5 *	10	21138	12	7	1	19	27284	8	2	7 *	17
13282	1	7	4	13	21271	7	3	5	15	27419	9	5	6	20
13601	9	1	1	10	21406	7	6	4 *	17	27470	21	0	0 *	18
13735	9	4	0 *	12	21539	2	2	8 *	13	27552	4	1	10	16
13868	4	0	4 *	8	21673	3	5	7	16	27553	9	8	5 *	22
14002	5	3	3	11	21725	15	0	1 *	14	27686	4	4	9 *	18
14137	5	6	2 *	13	21807	3	8	6 *	18	27820	5	7	8	21
14270	0	2	6 *	9	21859	16	3	0	17	27872	17	2	2 *	19
14404	1	5	5	12	22126	11	2	3 *	15	27953	0	3	12	17
14538	1	8	4 *	14	22260	12	5	2	18	28006	18	5	1	22
14857	9	2	1 *	11	22394	7	1	6	14	28088	0	6	11 *	19
14991	10	5	0	14	22395	12	8	1	20	28139	13	1	5	18
15124	5	1	4	10	22528	7	4	5 *	16	28140	18	8	0 *	24
15259	5	4	3 *	12	22661	2	0	9 *	12	28273	13	4	4 *	20
15392	0	0	7 *	8	22662	8	7	4	19	28406	8	0	8 *	16
15393	6	7	2	15	22795	3	3	8	15	28407	14	7	3	23
15526	1	3	6	11	22929	3	6	7 *	17	28541	9	3	7	19
15660	1	6	5 *	13	22981	16	1	1	16	28675	9	6	6 *	21
15979	9	0	2 *	10	23115	16	4	0 *	18	28726	22	1	0	20
16113	10	3	1	13	23248	11	0	4 *	14	28808	4	2	10 *	17
16248	10	6	0 *	15	23382	12	3	3	17	28942	5	5	9	20
16381	5	2	4 *	11	23517	12	6	2 *	19	28994	17	0	3 *	18

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x			
29075	0	1	13	16	33566	11	7	7	25	37921	16	3	7	25
29076	5	8	8	* 22	33617	23	2	1	* 23	38055	16	6	6	* 27
29128	18	3	2	21	33699	6	3	11	21	38106	29	1	0	26
29210	0	4	12	* 18	33751	24	5	0	26	38188	11	2	10	* 23
29262	18	6	1	* 23	33833	6	6	10	* 23	38322	12	5	9	26
29344	1	7	11	21	33884	19	1	4	22	38374	24	0	3	* 24
29395	13	2	5	* 19	34019	19	4	3	* 24	38455	7	1	13	22
29529	14	5	4	22	34100	2	5	13	22	38456	12	8	8	* 28
29663	9	1	8	18	34152	14	0	7	* 20	38508	25	3	2	27
29664	14	8	3	* 24	34153	20	7	2	27	38590	7	4	12	* 24
29797	9	4	7	* 20	34235	2	8	12	* 24	38642	25	6	1	* 29
29930	4	0	11	* 16	34286	15	3	6	23	38724	8	7	11	27
29931	10	7	6	23	34420	15	6	5	* 25	38775	20	2	5	* 25
29983	22	2	0	* 21	34553	10	2	9	* 21	38909	21	5	4	28
30064	5	3	10	19	34688	11	5	8	24	39043	16	1	8	24
30198	5	6	9	* 21	34739	23	0	2	* 22	39044	21	8	3	* 30
30250	18	1	3	20	34821	6	1	12	20	39177	16	4	7	* 26
30332	0	2	13	* 17	34822	11	8	7	* 26	39310	11	0	11	* 22
30384	18	4	2	* 22	34873	24	3	1	25	39311	17	7	6	29
30466	1	5	12	20	34955	6	4	11	* 22	39363	29	2	0	* 27
30517	13	0	6	* 18	35008	24	6	0	* 27	39444	12	3	10	25
30518	19	7	1	25	35089	7	7	10	25	39578	12	6	9	* 27
30600	1	8	11	* 22	35141	19	2	4	* 23	39630	25	1	3	26
30651	14	3	5	21	35275	20	5	3	26	39712	7	2	13	* 23
30786	14	6	4	* 23	35357	2	6	13	* 23	39764	25	4	2	* 28
30919	9	2	8	* 19	35408	15	1	7	22	39846	8	5	12	26
31053	10	5	7	22	35409	20	8	2	* 28	39897	20	0	6	* 24
31105	22	0	1	* 20	35542	15	4	6	* 24	39898	26	7	1	31
31186	5	1	11	18	35675	10	0	10	* 20	39980	8	8	11	* 28
31187	10	8	6	* 24	35677	16	7	5	27	40031	21	3	5	27
31239	23	3	0	23	35810	11	3	9	23	40166	21	6	4	* 29
31320	5	4	10	* 20	35944	11	6	8	* 25	40299	16	2	8	* 25
31455	6	7	9	23	35995	24	1	2	24	40433	17	5	7	28
31506	18	2	3	* 21	36077	6	2	12	* 21	40485	29	0	1	* 26
31588	1	3	13	19	36130	24	4	1	* 26	40566	12	1	11	24
31640	19	5	2	24	36211	7	5	11	24	40567	17	8	6	* 30
31722	1	6	12	* 21	36263	19	0	5	* 22	40619	30	3	0	29
31774	14	1	6	20	36264	25	7	0	29	40700	12	4	10	* 26
31775	19	8	1	* 26	36345	7	8	10	* 26	40835	13	7	9	29
31908	14	4	5	* 22	36397	20	3	4	25	40886	25	2	3	* 27
32041	9	0	9	* 18	36531	20	6	3	* 27	40968	8	3	13	25
32042	15	7	4	25	36613	3	7	13	25	41020	26	5	2	30
32175	10	3	8	21	36664	15	2	7	* 23	41102	8	6	12	* 27
32309	10	6	7	* 23	36799	16	5	6	26	41154	21	1	6	26
32361	23	1	1	22	36850	28	0	0	* 24	41155	26	8	1	* 32
32442	5	2	11	* 19	36932	11	1	10	22	41288	21	4	5	* 28
32495	23	4	0	* 24	36933	16	8	5	* 28	41421	16	0	9	* 24
32577	6	5	10	22	37066	11	4	9	* 24	41422	22	7	4	31
32628	18	0	4	* 20	37199	6	0	13	* 20	41555	17	3	8	27
32711	6	8	9	* 24	37200	12	7	8	27	41689	17	6	7	* 29
32762	19	3	3	23	37252	24	2	2	* 25	41741	30	1	1	28
32844	1	4	13	* 20	37333	7	3	12	23	41822	12	2	11	* 25
32897	19	6	2	* 25	37386	25	5	1	28	41875	30	4	0	* 30
32978	2	7	12	23	37468	7	6	11	* 25	41957	13	5	10	28
33030	14	2	6	* 21	37519	20	1	5	24	42008	25	0	4	* 26
33164	15	5	5	24	37520	25	8	0	* 30	42091	13	8	9	* 30
33297	10	1	9	20	37653	20	4	4	* 26	42142	26	3	3	29
33298	15	8	4	* 26	37786	15	0	8	* 22	42224	8	4	13	* 26
33431	10	4	8	* 22	37787	21	7	3	29	42277	26	6	2	* 31
33564	5	0	12	* 18	37869	3	8	13	* 26	42358	9	7	12	29

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂) x				Mass Defect	Composition C: NH 0 -H -(CH ₂) x				Mass Defect	Composition C: NH 0 -H -(CH ₂) x			
42410	21	2	6	• 27	47835	14	1	13	28	54302	29	4	6 *	36
42544	22	5	5	30	47836	19	8	8	• 34	54435	24	0	10 *	32
42677	17	1	9	26	47970	14	4	12	• 30	54437	30	7	5	39
42678	22	8	4	• 32	48104	15	7	11	33	54570	25	3	9	35
42811	17	4	8	• 28	48155	27	2	5	• 31	54704	25	6	8 *	37
42944	12	0	12	• 24	48289	28	5	4	34	54837	20	2	12 *	33
42946	18	7	7	31	48423	23	1	8	30	54971	21	5	11	36
42997	30	2	1	• 29	48424	28	8	3	* 36	55105	21	8	10 *	38
43079	13	3	11	27	48557	23	4	7	• 32	55373	17	7	13	37
43213	13	6	10	* 29	48690	18	0	11	• 28	55424	29	2	7 *	35
43264	26	1	4	28	48691	24	7	6	35	55559	30	5	6	38
43399	26	4	3	• 30	48824	19	3	10	31	55692	25	1	10	34
43480	9	5	13	28	48958	19	6	9	• 33	55693	30	8	5 *	40
43532	21	0	7	* 26	49092	14	2	13	• 29	55826	25	4	9 *	36
43533	27	7	2	33	49226	15	5	12	32	55959	20	0	13 *	32
43615	9	8	12	• 30	49277	27	0	6	* 30	55960	26	7	8	39
43666	22	3	6	29	49360	15	8	11	• 34	56093	21	3	12	35
43800	22	6	5	• 31	49411	28	3	5	33	56228	21	6	11 *	37
43933	17	2	9	• 27	49546	28	6	4	* 35	56546	29	0	8 *	34
44068	18	5	8	30	49679	23	2	8	• 31	56629	17	8	13 *	38
44119	30	0	2	• 28	49813	24	5	7	34	56681	30	3	7	37
44201	13	1	12	26	49946	19	1	11	30	56815	30	6	6 *	39
44202	18	8	7	* 32	49947	24	8	6	* 36	56948	25	2	10 *	35
44335	13	4	11	• 28	50080	19	4	10	* 32	57082	26	5	9	38
44469	14	7	10	31	50215	20	7	9	35	57215	21	1	13	34
44521	26	2	4	• 29	50348	15	3	13	31	57216	26	8	8 *	40
44655	27	5	3	32	50482	15	6	12	• 33	57350	21	4	12 *	36
44737	9	6	13	* 29	50534	28	1	6	32	57484	22	7	11	39
44788	22	1	7	28	50668	28	4	5	* 34	57803	30	1	8	36
44789	27	8	2	• 34	50801	23	0	9	• 30	57937	30	4	7 *	38
44922	22	4	6	• 30	50802	29	7	4	37	58070	25	0	11 *	34
45055	17	0	10	• 26	50935	24	3	8	33	58204	26	3	10	37
45057	23	7	5	33	51069	24	6	7	* 35	58338	26	6	9 *	39
45190	18	3	9	29	51202	19	2	11	• 31	58472	21	2	13 *	35
45324	18	6	8	• 31	51337	20	5	10	34	58606	22	5	12	38
45457	13	2	12	• 27	51471	20	8	9	* 36	58740	22	8	11 *	40
45591	14	5	11	30	51604	15	4	13	* 32	59059	30	2	8 *	37
45643	26	0	5	• 28	51738	16	7	12	35	59326	26	1	11	36
45725	14	8	10	• 32	51790	28	2	6	* 33	59460	26	4	10 *	38
45777	27	3	4	31	51924	29	5	5	36	59595	27	7	9	41
45911	27	6	3	* 33	52057	24	1	9	32	59728	22	3	13	37
45993	10	7	13	31	52058	29	8	4	• 38	59862	22	6	12 *	39
46044	22	2	7	• 29	52191	24	4	8	• 34	60181	30	0	9 *	36
46179	23	5	6	32	52324	19	0	12	* 30	60582	26	2	11 *	37
46312	18	1	10	28	52326	25	7	7	37	60717	27	5	10	40
46313	23	8	5	• 34	52459	20	3	11	33	60851	27	8	9 *	42
46446	18	4	9	• 30	52593	20	6	10	* 35	60984	22	4	13 *	38
46579	13	0	13	• 26	52860	16	5	13	34	61118	23	7	12	41
46580	19	7	8	33	52912	28	0	7	* 32	61704	26	0	12 *	36
46713	14	3	12	29	52995	16	8	12	* 36	61839	27	3	11	39
46848	14	6	11	• 31	53046	29	3	6	35	61973	27	6	10 *	41
46899	27	1	5	30	53180	29	6	5	* 37	62240	23	5	13	40
47033	27	4	4	* 32	53313	24	2	9	* 33	62375	23	8	12 *	42
47166	22	0	8	* 28	53448	25	5	8	36	62961	27	1	12	38
47167	28	7	3	35	53581	20	1	12	32	63095	27	4	11 *	40
47249	10	8	13	* 32	53582	25	8	7	* 38	63229	28	7	10	43
47301	23	3	7	31	53715	20	4	11	* 34	63497	23	6	13 *	41
47435	23	6	6	* 33	53849	21	7	10	37	64217	27	2	12 *	39
47568	18	2	10	* 29	54117	16	6	13	* 35	64351	28	5	11	42
47702	19	5	9	32	54168	29	1	7	34	64485	28	8	10 *	44

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	-(CH ₂)		C:	NH	O -H	-(CH ₂)		C:	NH	O -H	-(CH ₂)
-1339	0	0	0	0	16247	1	7	5 *	14	23381	3	4	8	16
-0083	0	1	0 *	1	16565	9	1	2 *	11	23516	3	7	7 *	18
01173	1	2	0	3	16700	10	4	1	14	23567	16	2	1	17
02295	1	0	1	2	16833	5	0	5	10	23701	16	5	0 *	19
02429	1	3	0 *	4	16834	10	7	0 *	16	23834	11	1	4 *	15
03551	1	1	1 *	3	16967	5	3	4 *	12	23969	12	4	3	18
03685	2	4	0	6	17101	6	6	3	15	24102	7	0	7	14
04807	2	2	1	5	17234	1	2	7	11	24103	12	7	2 *	20
04941	2	5	0 *	7	17369	1	5	6 *	13	24236	7	3	6 *	16
05929	2	0	2	4	17420	14	0	0	12	24370	8	6	5	19
06063	2	3	1 *	6	17503	2	8	5	16	24503	3	2	9	15
06198	3	6	0	9	17822	10	2	2	13	24638	3	5	8 *	17
07185	2	1	2 *	5	17956	10	5	1 *	15	24689	16	0	2	16
07320	3	4	1	8	18089	5	1	5 *	11	24772	4	8	7	20
07454	3	7	0 *	10	18090	11	8	0	18	24823	16	3	1 *	18
08040	7	0	0	6	18223	6	4	4	14	24958	17	6	0	21
08442	3	2	2	7	18356	1	0	8	10	25091	12	2	4	17
08576	3	5	1 *	9	18357	6	7	3 *	16	25225	12	5	3 *	19
08710	4	8	0	12	18491	1	3	7 *	12	25358	7	1	7 *	15
09296	7	1	0 *	7	18625	2	6	6	15	25359	13	8	2	22
09564	3	0	3	6	18676	14	1	0 *	13	25492	8	4	6	18
09698	3	3	2 *	8	18944	10	0	3	12	25625	3	0	10	14
09832	4	6	1	11	19078	10	3	2	* 14	25627	8	7	5 *	20
10234	0	8	3	12	19212	11	6	1	17	25760	3	3	9 *	16
10553	8	2	0	9	19345	6	2	5	13	25894	4	6	8	19
10820	3	1	3 *	7	19479	6	5	4 *	15	25945	16	1	2 *	17
10954	4	4	2	10	19613	1	1	8 *	11	26080	17	4	1	20
11088	4	7	1 *	12	19614	7	8	3	18	26213	12	0	5	16
11356	0	6	4	11	19747	2	4	7	14	26214	17	7	0 *	22
11675	8	0	1	8	19881	2	7	6 *	16	26295	0	8	10	20
11809	8	3	0 *	10	19933	15	2	0	15	26347	12	3	4 *	18
12076	4	2	3	9	20200	10	1	3 *	13	26481	13	6	3	21
12210	4	5	2 *	11	20334	11	4	2	16	26614	8	2	7	17
12345	5	8	1	14	20467	6	0	6	12	26749	8	5	6 *	19
12478	0	4	5	10	20468	11	7	1 *	18	26800	21	0	0	18
12612	0	7	4 *	12	20601	6	3	5 *	14	26882	3	1	10 *	15
12931	8	1	1 *	9	20736	7	6	4	17	26883	9	8	5	22
13065	9	4	0	12	20869	2	2	8	13	27016	4	4	9	18
13198	4	0	4	8	21003	2	5	7 *	15	27150	4	7	8 *	20
13332	4	3	3 *	10	21055	15	0	1	14	27202	17	2	2	19
13467	5	6	2	13	21137	3	8	6	18	27336	17	5	1 *	21
13600	0	2	6	9	21189	15	3	0 *	16	27418	0	6	11	19
13734	0	5	5 *	11	21456	11	2	3	15	27469	12	1	5 *	17
13868	1	8	4	14	21590	11	5	2 *	17	27470	18	8	0	24
14187	9	2	1	11	21724	6	1	6 *	13	27603	13	4	4	20
14321	9	5	0 *	13	21725	12	8	1	20	27736	8	0	8	16
14454	4	1	4 *	9	21858	7	4	5	16	27737	13	7	3 *	22
14589	5	4	3	12	21991	2	0	9	12	27871	8	3	7 *	18
14722	0	0	7	8	21992	7	7	4 *	18	28005	9	6	6	21
14723	5	7	2 *	14	22125	2	3	8 *	14	28056	21	1	0 *	19
14856	0	3	6 *	10	22259	3	6	7	17	28138	4	2	10	17
14990	1	6	5	13	22311	15	1	1 *	15	28272	4	5	9 *	19
15309	9	0	2	10	22445	16	4	0	18	28324	17	0	3	18
15443	9	3	1 *	12	22578	11	0	4	14	28406	5	8	8	22
15578	10	6	0	15	22712	11	3	3 *	16	28458	17	3	2 *	20
15711	5	2	4	11	22847	12	6	2	19	28540	0	4	12	18
15845	5	5	3 *	13	22980	7	2	6	15	28592	18	6	1	23
15978	0	1	7 *	9	23114	7	5	5 *	17	28674	0	7	11 *	20
15979	6	8	2	16	23247	2	1	9 *	13	28725	13	2	5	19
16112	1	4	6	12	23248	8	8	4	20	28859	13	5	4 *	21

Integer Residue Class 2-A

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x		
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		
28993	8	1	8	*	17		33482	14	0	7	20		37838	24	3	2	*	26	
28994	14	8	3		24		33483	19	7	2	*	26		37920	7	4	12		24
29127	9	4	7		20		33565	2	8	12		24		37972	25	6	1		29
29260	4	0	11		16		33616	14	3	6	*	22		38054	7	7	11	*	26
29261	9	7	6	*	22		33750	15	6	5		25		38105	20	2	5		25
29313	22	2	0		21		33883	10	2	9		21		38239	20	5	4	*	27
29394	4	3	10	*	18		34018	10	5	8	*	23		38373	15	1	8	*	23
29528	5	6	9		21		34069	23	0	2		22		38374	21	8	3		30
29580	17	1	3	*	19		34151	5	1	12	*	19		38507	16	4	7		26
29662	0	2	13		17		34152	11	8	7		26		38640	11	0	11		22
29714	18	4	2		22		34203	23	3	1	*	24		38641	16	7	6	*	28
29796	0	5	12	*	19		34285	6	4	11		22		38693	29	2	0		27
29847	13	0	6		18		34338	24	6	0		27		38774	11	3	10	*	24
29848	18	7	1	*	24		34419	6	7	10	*	24		38908	12	6	9		27
29930	1	8	11		22		34471	19	2	4		23		38960	24	1	3	*	25
29981	13	3	5	*	20		34605	19	5	3	*	25		39042	7	2	13		23
30116	14	6	4		23		34687	2	6	13		23		39094	25	4	2		28
30249	9	2	8		19		34738	14	1	7	*	21		39176	7	5	12	*	25
30383	9	5	7	*	21		34739	20	8	2		28		39227	20	0	6		24
30435	22	0	1		20		34872	15	4	6		24		39228	25	7	1	*	30
30516	4	1	11	*	17		35005	10	0	10		20		39310	8	8	11		28
30517	10	8	6		24		35007	15	7	5	*	26		39361	20	3	5	*	26
30569	22	3	0	*	22		35140	10	3	9	*	22		39496	21	6	4		29
30650	5	4	10		20		35274	11	6	8		25		39629	16	2	8		25
30785	5	7	9	*	22		35325	23	1	2	*	23		39763	16	5	7	*	27
30836	18	2	3		21		35407	6	2	12		21		39815	29	0	1		26
30918	0	3	13	*	18		35460	24	4	1		26		39896	11	1	11	*	23
30970	18	5	2	*	23		35541	6	5	11	*	23		39897	17	8	6		30
31052	1	6	12		21		35593	19	0	5		22		39949	29	3	0	*	28
31104	13	1	6	*	19		35594	24	7	0	*	28		40030	12	4	10		26
31105	19	8	1		26		35675	7	8	10		26		40165	12	7	9	*	28
31238	14	4	5		22		35727	19	3	4	*	24		40216	25	2	3		27
31371	9	0	9		18		35861	20	6	3		27		40298	7	3	13	*	24
31372	14	7	4	*	24		35943	2	7	13	*	24		40350	25	5	2	*	29
31505	9	3	8	*	20		35994	15	2	7		23		40432	8	6	12		27
31639	10	6	7		23		36129	15	5	6	*	25		40484	20	1	6	*	25
31691	22	1	1	*	21		36180	28	0	0		24		40485	26	8	1		32
31772	5	2	11		19		36262	10	1	10	*	21		40618	21	4	5		28
31825	23	4	0		24		36263	16	8	5		28		40751	16	0	9		24
31907	5	5	10	*	21		36396	11	4	9		24		40752	21	7	4	*	30
31958	18	0	4		20		36529	6	0	13		20		40885	16	3	8	*	26
32041	6	8	9		24		36530	11	7	8	*	26		41019	17	6	7		29
32092	18	3	3	*	22		36582	24	2	2		25		41071	29	1	1	*	27
32174	1	4	13		20		36663	6	3	12	*	22		41152	12	2	11		25
32227	19	6	2		25		36716	24	5	1	*	27		41205	30	4	0		30
32308	1	7	12	*	22		36798	7	6	11		25		41287	12	5	10	*	27
32360	14	2	6		21		36849	19	1	5	*	23		41338	25	0	4		26
32494	14	5	5	*	23		36850	25	8	0		30		41421	13	8	9		30
32627	9	1	9	*	19		36983	20	4	4		26		41472	25	3	3	*	28
32628	15	8	4		26		37116	15	0	8		22		41554	8	4	13		26
32761	10	4	8		22		37117	20	7	3	*	28		41607	26	6	2		31
32894	5	0	12		18		37199	3	8	13		26		41688	8	7	12	*	28
32896	10	7	7	*	24		37251	15	3	7	*	24		41740	21	2	6		27
32947	23	2	1		23		37385	16	6	6		27		41874	21	5	5	*	29
33029	5	3	11	*	20		37436	28	1	0	*	25		42007	16	1	9	*	25
33081	23	5	0	*	25		37518	11	2	10		23		42008	22	8	4		32
33163	6	6	10		23		37652	11	5	9	*	25		42141	17	4	8		28
33214	18	1	4	*	21		37704	24	0	3		24		42274	12	0	12		24
33349	19	4	3		24		37785	6	1	13	*	21		42276	17	7	7	*	30
33430	1	5	13	*	21		37786	12	8	8		28		42327	30	2	1		29

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)
42409	12	3	11	• 26	47619	27	5	4	• 33	54167	20	2	12	33
42461	30	5	0	• 31	47753	22	1	8	• 29	54301	20	5	11	* 35
42543	13	6	10	29	47754	28	8	3	36	54435	21	8	10	38
42594	25	1	4	• 27	47887	23	4	7	32	54703	16	7	13	* 36
42729	26	4	3	30	48020	18	0	11	28	54754	29	2	7	35
42810	8	5	13	* 27	48021	23	7	6	• 34	54889	29	5	6	• 37
42862	21	0	7	26	48154	18	3	10	• 30	55022	24	1	10	• 33
42863	26	7	2	* 32	48288	19	6	9	33	55023	30	8	5	40
42945	9	8	12	30	48422	14	2	13	29	55156	25	4	9	36
42996	21	3	6	• 28	48556	14	5	12	• 31	55289	20	0	13	32
43130	22	6	5	31	48607	27	0	6	30	55290	25	7	8	• 38
43263	17	2	9	27	48690	15	8	11	34	55423	20	3	12	• 34
43398	17	5	8	* 29	48741	27	3	5	* 32	55558	21	6	11	37
43449	30	0	2	28	48876	28	6	4	35	55876	29	0	8	34
43531	12	1	12	• 25	49009	23	2	8	31	55959	17	8	13	38
43532	18	8	7	32	49143	23	5	7	• 33	56011	29	3	7	* 36
43583	30	3	1	• 30	49276	18	1	11	• 29	56145	30	6	6	39
43665	13	4	11	28	49277	24	8	6	36	56278	25	2	10	35
43799	13	7	10	• 30	49410	19	4	10	32	56412	25	5	9	• 37
43851	26	2	4	29	49545	19	7	9	• 34	56545	20	1	13	* 33
43985	26	5	3	• 31	49678	14	3	13	• 30	56546	26	8	8	40
44067	9	6	13	29	49812	15	6	12	33	56680	21	4	12	36
44118	21	1	7	• 27	49864	27	1	6	* 31	56814	21	7	11	• 38
44119	27	8	2	34	49998	28	4	5	34	57133	29	1	8	• 35
44252	22	4	6	30	50131	23	0	9	30	57267	30	4	7	38
44385	17	0	10	26	50132	28	7	4	* 36	57400	25	0	11	34
44387	22	7	5	• 32	50265	23	3	8	* 32	57401	30	7	6	• 40
44520	17	3	9	• 28	50399	24	6	7	35	57534	25	3	10	• 36
44654	18	6	8	31	50532	19	2	11	31	57668	26	6	9	39
44705	30	1	2	* 29	50667	19	5	10	• 33	57802	21	2	13	35
44787	13	2	12	27	50801	20	8	9	36	57936	21	5	12	• 37
44921	13	5	11	• 29	50934	15	4	13	32	58070	22	8	11	40
44973	26	0	5	28	51068	15	7	12	• 34	58389	30	2	8	37
45055	14	8	10	32	51120	28	2	6	33	58523	30	5	7	* 39
45107	26	3	4	* 30	51254	28	5	5	* 35	58656	25	1	11	• 35
45241	27	6	3	33	51387	23	1	9	* 31	58790	26	4	10	38
45323	9	7	13	• 30	51388	29	8	4	38	58925	26	7	9	• 40
45374	22	2	7	29	51521	24	4	8	34	59058	21	3	13	• 36
45509	22	5	6	* 31	51654	19	0	12	30	59192	22	6	12	39
45642	17	1	10	* 27	51656	24	7	7	* 36	59511	30	0	9	36
45643	23	8	5	34	51789	19	3	11	• 32	59645	30	3	8	• 38
45776	18	4	9	30	51923	20	6	10	35	59912	26	2	11	37
45909	13	0	13	26	52190	15	5	13	• 33	60047	26	5	10	* 39
45910	18	7	8	• 32	52242	28	0	7	32	60181	27	8	9	42
46043	13	3	12	• 28	52325	16	8	12	36	60314	22	4	13	38
46178	14	6	11	31	52376	28	3	6	• 34	60448	22	7	12	* 40
46229	26	1	5	* 29	52510	29	6	5	37	60767	30	1	9	* 37
46363	27	4	4	32	52643	24	2	9	33	61034	26	0	12	36
46496	22	0	8	28	52778	24	5	8	• 35	61169	26	3	11	• 38
46497	27	7	3	* 34	52911	19	1	12	• 31	61303	27	6	10	41
46579	10	8	13	32	52912	25	8	7	38	61570	22	5	13	• 39
46631	22	3	7	• 30	53045	20	4	11	34	61705	23	8	12	42
46765	23	6	6	33	53179	20	7	10	* 36	62291	26	1	12	• 37
46898	18	2	10	29	53447	16	6	13	35	62425	27	4	11	40
47032	18	5	9	• 31	53498	28	1	7	* 33	62559	27	7	10	* 42
47165	13	1	13	* 27	53632	29	4	6	36	62827	23	6	13	41
47166	19	8	8	34	53765	24	0	10	32	63547	27	2	12	39
47300	14	4	12	30	53767	29	7	5	* 38	63681	27	5	11	* 41
47434	14	7	11	• 32	53900	24	3	9	* 34	63815	28	8	10	44
47485	27	2	5	31	54034	25	6	8	37	64083	23	7	13	* 42

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x	
	C:	NH	O	-H -(CH ₂)			C:	NH	O	-H -(CH ₂)			C:	NH	O	-H -(CH ₂)		
-0753	0	1	0	1		16431	5	6	3	* 14		23432	6	0	7	* 13		
00503	0	2	0	*	2	16564	0	2	7	* 10		23433	12	7	2	20		
01625	0	0	1	*	1	16699	1	5	6	13		23566	7	3	6	16		
01759	1	3	0	4		16750	13	0	0	*	11		23700	7	6	5	*	18
02881	1	1	1	3		16833	1	8	5	*	15		23833	2	2	9	*	14
03015	1	4	0	*	5	17152	9	2	2	*	12		23968	3	5	8	17	
04137	1	2	1	*	4	17286	10	5	1	15			24019	15	0	2	*	15
04271	2	5	0	7		17419	5	1	5	11			24102	3	8	7	*	19
05259	1	0	2	*	3	17420	10	8	0	*	17		24153	16	3	1	18	
05393	2	3	1	6		17553	5	4	4	*	13		24288	16	6	0	*	20
05528	2	6	0	*	8	17686	0	0	8	*	9		24421	11	2	4	*	16
06515	2	1	2	5		17687	6	7	3	16			24555	12	5	3	19	
06650	2	4	1	*	7	17821	1	3	7	12			24688	7	1	7	15	
06784	3	7	0	10		17955	1	6	6	*	14		24689	12	8	2	*	21
07370	6	0	0	*	5	18006	14	1	0	13			24822	7	4	6	*	17
07772	2	2	2	*	6	18274	9	0	3	*	11		24955	2	0	10	*	13
07906	3	5	1	9		18408	10	3	2	14			24957	8	7	5	20	
08040	3	8	0	*	11	18542	10	6	1	*	16		25090	3	3	9	16	
08626	7	1	0	7		18675	5	2	5	*	12		25224	3	6	8	*	18
08894	2	0	3	*	5	18809	6	5	4	15			25275	16	1	2	17	
09028	3	3	2	8		18943	1	1	8	11			25410	16	4	1	*	19
09162	3	6	1	*	10	18944	6	8	3	*	17		25543	11	0	5	*	15
09883	7	2	0	*	8	19077	1	4	7	*	13		25544	17	7	0	22	
10150	3	1	3	7		19211	2	7	6	16			25677	12	3	4	18	
10284	3	4	2	*	9	19263	14	2	0	*	14		25811	12	6	3	*	20
10418	4	7	1	12		19530	10	1	3	13			25944	7	2	7	*	16
11005	7	0	1	*	7	19664	10	4	2	*	15		26079	8	5	6	19	
11139	8	3	0	10		19797	5	0	6	*	11		26130	20	0	0	*	17
11406	3	2	3	*	8	19798	11	7	1	18			26212	3	1	10	15	
11540	4	5	2	11		19931	6	3	5	14			26213	8	8	5	*	21
11675	4	8	1	*	13	20066	6	6	4	*	16		26346	3	4	9	*	17
11942	0	7	4	12		20199	1	2	8	*	12		26480	4	7	8	20	
12261	8	1	1	9		20333	2	5	7	15			26532	16	2	2	*	18
12395	8	4	0	*	11	20385	14	0	1	*	13		26666	17	5	1	21	
12528	3	0	4	*	7	20467	2	8	6	*	17		26799	12	1	5	17	
12662	4	3	3	10		20519	15	3	0	16			26800	17	8	0	*	23
12797	4	6	2	*	12	20786	10	2	3	*	14		26933	12	4	4	*	19
13064	0	5	5	11		20920	11	5	2	17			27066	7	0	8	*	15
13198	0	8	4	*	13	21054	6	1	6	13			27067	13	7	3	22	
13517	8	2	1	*	10	21055	11	8	1	*	19		27201	8	3	7	18	
13651	9	5	0	13		21188	6	4	5	*	15		27335	8	6	6	*	20
13784	4	1	4	9		21321	1	0	9	*	11		27386	21	1	0	19	
13919	4	4	3	*	11	21322	7	7	4	18			27468	3	2	10	*	16
14053	5	7	2	14		21455	2	3	8	14			27602	4	5	9	19	
14186	0	3	6	10		21589	2	6	7	*	16		27654	16	0	3	*	17
14320	0	6	5	*	12	21641	15	1	1	15			27736	4	8	8	*	21
14639	8	0	2	*	9	21775	15	4	0	*	17		27788	17	3	2	20	
14773	9	3	1	12		21908	10	0	4	*	13		27922	17	6	1	*	22
14908	9	6	0	*	14	22042	11	3	3	16			28004	0	7	11	20	
15041	4	2	4	*	10	22177	11	6	2	*	18		28055	12	2	5	*	18
15175	5	5	3	13		22310	6	2	6	*	14		28189	13	5	4	21	
15308	0	1	7	9		22444	7	5	5	17			28323	8	1	8	17	
15309	5	8	2	*	15	22577	2	1	9	13			28324	13	8	3	*	23
15442	0	4	6	*	11	22578	7	8	4	*	19		28457	8	4	7	*	19
15577	1	7	5	14		22711	2	4	8	*	15		28590	3	0	11	*	15
15895	9	1	2	11		22846	3	7	7	18			28591	9	7	6	22	
16030	9	4	1	*	13	22897	15	2	1	*	16		28643	21	2	0	*	20
16163	4	0	5	*	9	23031	16	5	0	19			28724	4	3	10	18	
16164	10	7	0	16		23164	11	1	4	15			28858	4	6	9	*	20
16297	5	3	4	12		23299	11	4	3	*	17		28910	17	1	3	19	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	<u>Composition</u>				x	Mass Defect	<u>Composition</u>				x	Mass Defect	<u>Composition</u>				x		
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		
29044	17	4	2	*	21		33533	23	3	1	24		37971	16	7	6	*	28	
29126	0	5	12	*	19		33615	5	4	11	*	21		38023	28	2	0	*	26
29177	12	0	6	*	17		33668	23	6	0	*	26		38104	11	3	10	*	24
29178	18	7	1	24			33749	6	7	10	*	24		38238	11	6	9	*	26
29260	0	8	11	*	21		33801	18	2	4	*	22		38290	24	1	3	25	
29311	13	3	5	20			33935	19	5	3	25			38372	6	2	13	*	22
29446	13	6	4	*	22		34017	1	6	13	*	22		38424	24	4	2	*	27
29579	8	2	8	*	18		34068	14	1	7	21			38506	7	5	12	25	
29713	9	5	7	21			34069	19	8	2	*	27		38557	19	0	6	*	23
29765	21	0	1	*	19		34202	14	4	6	*	23		38558	25	7	1	30	
29846	4	1	11	17			34335	9	0	10	*	19		38640	7	8	11	*	27
29847	9	8	6	*	23		34337	15	7	5	26			38691	20	3	5	26	
29899	22	3	0	22			34470	10	3	9	22			38826	20	6	4	*	28
29980	4	4	10	*	19		34604	10	6	8	*	24		38959	15	2	8	*	24
30115	5	7	9	22			34655	23	1	2	23			39093	16	5	7	27	
30166	17	2	3	*	20		34737	5	2	12	*	20		39145	28	0	1	*	25
30248	0	3	13	18			34790	23	4	1	*	25		39226	11	1	11	23	
30300	18	5	2	23			34871	6	5	11	23			39227	16	8	6	*	29
30382	0	6	12	*	20		34923	18	0	5	*	21		39279	29	3	0	28	
30434	13	1	6	19			34924	24	7	0	28			39360	11	4	10	*	25
30435	18	8	1	*	25		35005	6	8	10	*	25		39495	12	7	9	28	
30568	13	4	5	*	21		35057	19	3	4	24			39546	24	2	3	*	26
30701	8	0	9	*	17		35191	19	6	3	*	26		39628	7	3	13	24	
30702	14	7	4	24			35273	2	7	13	24			39680	25	5	2	29	
30835	9	3	8	20			35324	14	2	7	*	22		39762	7	6	12	*	26
30969	9	6	7	*	22		35459	15	5	6	25			39814	20	1	6	25	
31021	22	1	1	21			35510	27	0	0	*	23		39815	25	8	1	*	31
31102	4	2	11	*	18		35592	10	1	10	21			39948	20	4	5	*	27
31155	22	4	0	*	23		35593	15	8	5	*	27		40081	15	0	9	*	23
31237	5	5	10	21			35726	10	4	9	*	23		40082	21	7	4	30	
31288	17	0	4	*	19		35859	5	0	13	*	19		40215	16	3	8	26	
31371	5	8	9	*	23		35860	11	7	8	26			40349	16	6	7	*	28
31422	18	3	3	22			35912	23	2	2	*	24		40401	29	1	1	27	
31504	0	4	13	*	19		35993	6	3	12	22			40482	11	2	11	*	24
31557	18	6	2	*	24		36046	24	5	1	27			40535	29	4	0	*	29
31638	1	7	12	22			36128	6	6	11	*	24		40617	12	5	10	27	
31690	13	2	6	*	20		36179	19	1	5	23			40668	24	0	4	*	25
31824	14	5	5	23			36180	24	8	0	*	29		40751	12	8	9	*	29
31957	9	1	9	19			36313	19	4	4	*	25		40802	25	3	3	28	
31958	14	8	4	*	25		36446	14	0	8	*	21		40884	7	4	13	*	25
32091	9	4	8	*	21		36447	20	7	3	28			40937	25	6	2	*	30
32224	4	0	12	*	17		36529	2	8	13	*	25		41018	8	7	12	28	
32226	10	7	7	24			36581	15	3	7	24			41070	20	2	6	*	26
32277	22	2	1	*	22		36715	15	6	6	*	26		41204	21	5	5	29	
32359	5	3	11	20			36766	28	1	0	25			41337	16	1	9	25	
32411	23	5	0	25			36848	10	2	10	*	22		41338	21	8	4	*	31
32493	5	6	10	*	22		36982	11	5	9	25			41471	16	4	8	*	27
32544	18	1	4	21			37034	23	0	3	*	23		41604	11	0	12	*	23
32679	18	4	3	*	23		37115	6	1	13	21			41606	17	7	7	30	
32760	1	5	13	21			37116	11	8	8	*	27		41657	29	2	1	*	28
32812	13	0	7	*	19		37168	24	3	2	26			41739	12	3	11	26	
32813	19	7	2	26			37250	6	4	12	*	23		41791	30	5	0	31	
32895	1	8	12	*	23		37302	24	6	1	*	28		41873	12	6	10	*	28
32946	14	3	6	22			37384	7	7	11	26			41924	25	1	4	27	
33080	14	6	5	*	24		37435	19	2	5	*	24		42059	25	4	3	*	29
33213	9	2	9	*	20		37569	20	5	4	27			42140	8	5	13	27	
33348	10	5	8	23			37703	15	1	8	23			42192	20	0	7	*	25
33399	22	0	2	*	21		37704	20	8	3	*	29		42193	26	7	2	32	
33481	5	1	12	19			37837	15	4	7	*	25		42275	8	8	12	*	29
33482	10	8	7	*	25		37970	10	0	11	*	21		42326	21	3	6	28	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂)				Mass Defect	Composition C: NH 0 -H -(CH ₂)				Mass Defect	Composition C: NH 0 -H -(CH ₂)						
42460	21	6	5	•	30	47484	18	3	10	30	54352	24	1	10	33		
42593	16	2	9	*	26	47618	18	6	9	*	32	54353	29	8	5	*	39
42728	17	5	8		29	47752	13	2	13	*	28	54486	24	4	9	*	35
42779	29	0	2	*	27	47886	14	5	12		31	54619	19	0	13	*	31
42861	12	1	12		25	47937	26	0	6	*	29	54620	25	7	8		38
42862	17	8	7	*	31	48020	14	8	11	*	33	54753	20	3	12		34
42913	30	3	1		30	48071	27	3	5		32	54888	20	6	11	*	36
42995	12	4	11	•	27	48206	27	6	4	*	34	55206	28	0	8	*	33
43048	30	6	0	•	32	48339	22	2	8	*	30	55289	16	8	13	*	37
43129	13	7	10		30	48473	23	5	7		33	55341	29	3	7		36
43181	25	2	4	•	28	48606	18	1	11		29	55475	29	6	6	*	38
43315	26	5	3		31	48607	23	8	6	•	35	55608	24	2	10	*	34
43397	8	6	13	*	28	48740	18	4	10	*	31	55742	25	5	9		37
43448	21	1	7		27	48875	19	7	9		34	55875	20	1	13		33
43449	26	8	2	*	33	49008	14	3	13		30	55876	25	8	8	*	39
43582	21	4	6	*	29	49142	14	6	12	*	32	56010	20	4	12	*	35
43715	16	0	10	*	25	49194	27	1	6		31	56144	21	7	11		38
43717	22	7	5		32	49328	27	4	5	*	33	56463	29	1	8		35
43850	17	3	9		28	49461	22	0	9	*	29	56597	29	4	7	*	37
43984	17	6	8	•	30	49462	28	7	4		36	56730	24	0	11	*	33
44035	30	1	2		29	49595	23	3	8		32	56731	30	7	6		40
44117	12	2	12	*	26	49729	23	6	7	•	34	56864	25	3	10		36
44170	30	4	1	•	31	49862	18	2	11	•	30	56998	25	6	9	*	38
44251	13	5	11		29	49997	19	5	10		33	57132	20	2	13	*	34
44303	25	0	5	•	27	50131	19	8	9	•	35	57266	21	5	12		37
44385	13	8	10	*	31	50264	14	4	13	*	31	57400	21	8	11	*	39
44437	26	3	4		30	50398	15	7	12		34	57719	29	2	8	*	36
44571	26	6	3	*	32	50450	27	2	6	•	32	57853	30	5	7		39
44653	9	7	13		30	50584	28	5	5		35	57986	25	1	11		35
44704	21	2	7	*	28	50717	23	1	9		31	57987	30	8	6	*	41
44839	22	5	6		31	50718	28	8	4	•	37	58120	25	4	10	*	37
44972	17	1	10		27	50851	23	4	8	•	33	58255	26	7	9		40
44973	22	8	5	*	33	50984	18	0	12	•	29	58388	21	3	13		36
45106	17	4	9	*	29	50986	24	7	7		36	58522	21	6	12	*	38
45239	12	0	13	•	25	51119	19	3	11		32	58841	29	0	9	*	35
45240	18	7	8		32	51253	19	6	10	•	34	58975	30	3	8		38
45292	30	2	2	•	30	51520	15	5	13		33	59109	30	6	7	*	40
45373	13	3	12		28	51572	27	0	7	•	31	59242	25	2	11	*	36
45508	13	6	11	•	30	51655	15	8	12	*	35	59377	26	5	10		39
45559	26	1	5		29	51706	28	3	6		34	59511	26	8	9	*	41
45693	26	4	4	•	31	51840	28	6	5	•	36	59644	21	4	13	*	37
45826	21	0	8	*	27	51973	23	2	9	*	32	59778	22	7	12		40
45827	27	7	3		34	52108	24	5	8		35	60097	30	1	9		37
45909	9	8	13	•	31	52241	19	1	12		31	60231	30	4	8	*	39
45961	22	3	7		30	52242	24	8	7	*	37	60364	25	0	12	*	35
46095	22	6	6	•	32	52375	19	4	11	*	33	60499	26	3	11		38
46228	17	2	10	•	28	52509	20	7	10		36	60633	26	6	10	*	40
46362	18	5	9		31	52777	15	6	13	•	34	60900	22	5	13		39
46414	30	0	3	*	29	52828	28	1	7		33	61035	22	8	12	*	41
46495	13	1	13		27	52962	28	4	6	•	35	61353	30	2	9	*	38
46496	18	8	8	•	33	53095	23	0	10	•	31	61621	26	1	12		37
46630	13	4	12	*	29	53097	29	7	5		38	61755	26	4	11	*	39
46764	14	7	11		32	53230	24	3	9		34	61889	27	7	10		42
46815	26	2	5	*	30	53364	24	6	8	*	36	62157	22	6	13	*	40
46949	27	5	4		33	53497	19	2	12	•	32	62475	30	0	10	*	37
47083	22	1	8		29	53631	20	5	11		35	62877	26	2	12	*	38
47084	27	8	3	•	35	53765	20	8	10	•	37	63011	27	5	11		41
47217	22	4	7	*	31	54033	16	7	13		36	63145	27	8	10	*	43
47350	17	0	11	*	27	54084	28	2	7	•	34	63413	23	7	13		42
47351	23	7	6		34	54219	29	5	6		37	63999	26	0	13	*	37

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
-0166	0	2	0	2		16482	9	2	2	12		23298	2	5	8	*	16
00955	0	0	1	1		16616	9	5	1	*	14	23349	15	0	2		15
01089	0	3	0	*	3	16749	4	1	5	*	10	23432	3	8	7		19
02211	0	1	1	*	2	16750	10	8	0		17	23483	15	3	1	*	17
02345	1	4	0	5		16883	5	4	4		13	23618	16	6	0		20
03467	1	2	1	4		17016	0	0	8		9	23751	11	2	4		16
03601	1	5	0	*	6	17017	5	7	3	*	15	23885	11	5	3	*	18
04589	1	0	2	3		17151	0	3	7	*	11	24018	6	1	7	*	14
04723	1	3	1	*	5	17285	1	6	6		14	24019	12	8	2		21
04858	2	6	0	8		17336	13	1	0	*	12	24152	7	4	6		17
05845	1	1	2	*	4	17604	9	0	3		11	24285	2	0	10		13
05980	2	4	1	7		17738	9	3	2	*	13	24287	7	7	5	*	19
06114	2	7	0	*	9	17872	10	6	1		16	24420	2	3	9	*	15
06700	6	0	0	5		18005	5	2	5		12	24554	3	6	8		18
07102	2	2	2	6		18139	5	5	4	*	14	24605	15	1	2	*	16
07236	2	5	1	*	8	18273	0	1	8	*	10	24740	16	4	1		19
07370	3	8	0	11		18274	6	8	3		17	24873	11	0	5		15
07956	6	1	0	*	6	18407	1	4	7		13	24874	16	7	0	*	21
08224	2	0	3	5		18541	1	7	6	*	15	25007	11	3	4	*	17
08358	2	3	2	*	7	18593	14	2	0		14	25141	12	6	3		20
08492	3	6	1	10		18860	9	1	3	*	12	25274	7	2	7		16
09213	7	2	0	8		18994	10	4	2		15	25409	7	5	6	*	18
09480	2	1	3	*	6	19127	5	0	6		11	25460	20	0	0		17
09614	3	4	2	9		19128	10	7	1	*	17	25542	2	1	10	*	14
09748	3	7	1	*	11	19261	5	3	5	*	13	25543	8	8	5		21
10335	7	0	1	7		19396	6	6	4		16	25676	3	4	9		17
10469	7	3	0	*	9	19529	1	2	8		12	25810	3	7	8	*	19
10736	3	2	3	8		19663	1	5	7	*	14	25862	16	2	2		18
10870	3	5	2	*	10	19715	14	0	1		13	25996	16	5	1	*	20
11005	4	8	1	13		19797	2	8	6		17	26129	11	1	5	*	16
11591	7	1	1	*	8	19849	14	3	0	*	15	26130	17	8	0		23
11725	8	4	0	11		20116	10	2	3		14	26263	12	4	4		19
11858	3	0	4	7		20250	10	5	2	*	16	26396	7	0	8		15
11992	3	3	3	*	9	20384	5	1	6	*	12	26397	12	7	3	*	21
12127	4	6	2	12		20385	11	8	1		19	26531	7	3	7	*	17
12528	0	8	4	13		20518	6	4	5		15	26665	8	6	6		20
12847	8	2	1	10		20651	1	0	9		11	26716	20	1	0	*	18
12981	8	5	0	*	12	20652	6	7	4	*	17	26798	3	2	10		16
13114	3	1	4	*	8	20785	1	3	8	*	13	26932	3	5	9	*	18
13249	4	4	3	11		20919	2	6	7		16	26984	16	0	3		17
13383	4	7	2	*	13	20971	14	1	1	*	14	27066	4	8	8		21
13650	0	6	5	12		21105	15	4	0		17	27118	16	3	2	*	19
13969	8	0	2	9		21238	10	0	4		13	27252	17	6	1		22
14103	8	3	1	*	11	21372	10	3	3	*	15	27385	12	2	5		18
14238	9	6	0	14		21507	11	6	2		18	27519	12	5	4	*	20
14371	4	2	4	10		21640	6	2	6		14	27653	7	1	8	*	16
14505	4	5	3	*	12	21774	6	5	5	*	16	27654	13	8	3		23
14639	5	8	2	15		21907	1	1	9	*	12	27787	8	4	7		19
14772	0	4	6	11		21908	7	8	4		19	27920	3	0	11		15
14907	0	7	5	*	13	22041	2	4	8		15	27921	8	7	6	*	21
15225	8	1	2	*	10	22176	2	7	7	*	17	27973	21	2	0		20
15360	9	4	1	13		22227	15	2	1		16	28054	3	3	10	*	17
15493	4	0	5	9		22361	15	5	0	*	18	28188	4	6	9		20
15494	9	7	0	*	15	22494	10	1	4	*	14	28240	16	1	3	*	18
15627	4	3	4	*	11	22629	11	4	3		17	28374	17	4	2		21
15761	5	6	3	14		22762	6	0	7		13	28507	12	0	6		17
15894	0	2	7	10		22763	11	7	2	*	19	28508	17	7	1	*	23
16029	0	5	6	*	12	22896	6	3	6	*	15	28590	0	8	11		21
16080	13	0	0	11		23030	7	6	5		18	28641	12	3	5	*	19
16163	1	8	5	15		23163	2	2	9		14	28776	13	6	4		22

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	-(CH ₂)		C:	NH	O -H	-(CH ₂)		C:	NH	O -H	-(CH ₂)
28909	8	2	8	18	33399	19	8	2	27	37887	19	0	6	23
29043	8	5	7	* 20	33532	14	4	6	23	37888	24	7	1	* 29
29095	21	0	1	19	33665	9	0	10	19	37970	7	8	11	27
29176	3	1	11	* 16	33667	14	7	5	* 25	38021	19	3	5	* 25
29177	9	8	6	23	33800	9	3	9	* 21	38156	20	6	4	28
29229	21	3	0	* 21	33934	10	6	8	24	38289	15	2	8	24
29310	4	4	10	19	33985	22	1	2	* 22	38423	15	5	7	* 26
29445	4	7	9	* 21	34067	5	2	12	20	38475	28	0	1	25
29496	17	2	3	20	34120	23	4	1	25	38556	10	1	11	* 22
29630	17	5	2	* 22	34201	5	5	11	* 22	38557	16	8	6	29
29712	0	6	12	20	34253	18	0	5	21	38609	28	3	0	* 27
29764	12	1	6	* 18	34254	23	7	0	* 27	38690	11	4	10	25
29765	18	8	1	25	34335	6	8	10	25	38825	11	7	9	* 27
29898	13	4	5	21	34387	18	3	4	* 23	38876	24	2	3	26
30031	8	0	9	17	34521	19	6	3	26	38958	6	3	13	* 23
30032	13	7	4	* 23	34603	1	7	13	* 23	39010	24	5	2	* 28
30165	8	3	8	* 19	34654	14	2	7	22	39092	7	6	12	26
30299	9	6	7	22	34789	14	5	6	* 24	39144	19	1	6	* 24
30351	21	1	1	* 20	34840	27	0	0	23	39145	25	8	1	31
30432	4	2	11	18	34922	9	1	10	* 20	39278	20	4	5	27
30485	22	4	0	23	34923	15	8	5	27	39411	15	0	9	23
30567	4	5	10	* 20	35056	10	4	9	23	39412	20	7	4	* 29
30618	17	0	4	19	35189	5	0	13	19	39545	15	3	8	* 25
30701	5	8	9	23	35190	10	7	8	* 25	39679	16	6	7	28
30752	17	3	3	* 21	35242	23	2	2	24	39731	28	1	1	* 26
30834	0	4	13	19	35323	5	3	12	* 21	39812	11	2	11	24
30887	18	6	2	24	35376	23	5	1	* 26	39865	29	4	0	29
30968	0	7	12	* 21	35458	6	6	11	24	39947	11	5	10	* 26
31020	13	2	6	20	35509	18	1	5	* 22	39998	24	0	4	25
31154	13	5	5	* 22	35510	24	8	0	29	40081	12	8	9	29
31287	8	1	9	* 18	35643	19	4	4	25	40132	24	3	3	* 27
31288	14	8	4	25	35776	14	0	8	21	40214	7	4	13	25
31421	9	4	8	21	35777	19	7	3	* 27	40267	25	6	2	30
31554	4	0	12	17	35859	2	8	13	25	40348	7	7	12	* 27
31556	9	7	7	* 23	35911	14	3	7	* 23	40400	20	2	6	26
31607	22	2	1	22	36045	15	6	6	26	40534	20	5	5	* 28
31689	4	3	11	* 19	36096	27	1	0	* 24	40667	15	1	9	* 24
31741	22	5	0	* 24	36178	10	2	10	22	40668	21	8	4	31
31823	5	6	10	22	36312	10	5	9	* 24	40801	16	4	8	27
31874	17	1	4	* 20	36364	23	0	3	23	40934	11	0	12	23
32009	18	4	3	23	36445	5	1	13	* 20	40936	16	7	7	* 29
32090	0	5	13	* 20	36446	11	8	8	27	40987	29	2	1	28
32142	13	0	7	19	36498	23	3	2	* 25	41069	11	3	11	* 25
32143	18	7	2	* 25	36580	6	4	12	23	41121	29	5	0	* 30
32225	1	8	12	23	36632	24	6	1	28	41203	12	6	10	28
32276	13	3	6	* 21	36714	6	7	11	* 25	41254	24	1	4	* 26
32410	14	6	5	24	36765	19	2	5	24	41389	25	4	3	29
32543	9	2	9	20	36899	19	5	4	* 26	41470	7	5	13	* 26
32678	9	5	8	* 22	37033	14	1	8	* 22	41522	20	0	7	25
32729	22	0	2	21	37034	20	8	3	29	41523	25	7	2	* 31
32811	4	1	12	* 18	37167	15	4	7	25	41605	8	8	12	29
32812	10	8	7	25	37300	10	0	11	21	41656	20	3	6	* 27
32863	22	3	1	* 23	37301	15	7	6	* 27	41790	21	6	5	30
32945	5	4	11	21	37353	28	2	0	26	41923	16	2	9	26
32998	23	6	0	26	37434	10	3	10	* 23	42058	16	5	8	* 28
33079	5	7	10	* 23	37568	11	6	9	26	42109	29	0	2	27
33131	18	2	4	22	37620	23	1	3	* 24	42191	11	1	12	* 24
33265	18	5	3	* 24	37702	6	2	13	22	42192	17	8	7	31
33347	1	6	13	22	37754	24	4	2	27	42243	29	3	1	* 29
33398	13	1	7	* 20	37836	6	5	12	* 24	42325	12	4	11	27

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
42378	30	6	0	32		47267	26	0	6	29		53950	24	7	8	*	37
42459	12	7	10	*	29	47350	14	8	11	33		54083	19	3	12	*	33
42511	25	2	4	28		47401	26	3	5	*	31	54218	20	6	11		36
42645	25	5	3	*	30	47536	27	6	4	34		54536	28	0	8		33
42727	8	6	13	28		47669	22	2	8	30		54619	16	8	13		37
42778	20	1	7	*	26	47803	22	5	7	*	32	54671	28	3	7	*	35
42779	26	8	2	33		47936	17	1	11	*	28	54805	29	6	6		38
42912	21	4	6	29		47937	23	8	6	35		54938	24	2	10		34
43045	16	0	10	25		48070	18	4	10	31		55072	24	5	9	*	36
43047	21	7	5	*	31	48205	18	7	9	*	33	55205	19	1	13	*	32
43180	16	3	9	*	27	48338	13	3	13	*	29	55206	25	8	8		39
43314	17	6	8	30		48472	14	6	12	32		55340	20	4	12		35
43365	29	1	2	*	28	48524	26	1	6	*	30	55474	20	7	11	*	37
43447	12	2	12	26		48658	27	4	5	33		55793	28	1	8	*	34
43500	30	4	1	31		48791	22	0	9	29		55927	29	4	7		37
43581	12	5	11	*	28	48792	27	7	4	*	35	56060	24	0	11		33
43633	25	0	5	27		48925	22	3	8	*	31	56061	29	7	6	*	39
43634	30	7	0	*	33	49059	23	6	7	34		56194	24	3	10	*	35
43715	13	8	10	31		49192	18	2	11	30		56328	25	6	9		38
43767	25	3	4	*	29	49327	18	5	10	*	32	56462	20	2	13		34
43901	26	6	3	32		49461	19	8	9	35		56596	20	5	12	*	36
43983	8	7	13	*	29	49594	14	4	13	31		56730	21	8	11		39
44034	21	2	7	28		49728	14	7	12	*	33	57049	29	2	8		36
44169	21	5	6	*	30	49780	27	2	6	32		57183	29	5	7	*	38
44302	16	1	10	*	26	49914	27	5	5	*	34	57316	24	1	11	*	34
44303	22	8	5	33		50047	22	1	9	*	30	57317	30	8	6		41
44436	17	4	9	29		50048	28	8	4	37		57450	25	4	10		37
44569	12	0	13	25		50181	23	4	8	33		57585	25	7	9	*	39
44570	17	7	8	*	31	50314	18	0	12	29		57718	20	3	13	*	35
44622	30	2	2	30		50316	23	7	7	*	35	57852	21	6	12		38
44703	12	3	12	*	27	50449	18	3	11	*	31	58171	29	0	9		35
44756	30	5	1	*	32	50583	19	6	10	34		58305	29	3	8	*	37
44838	13	6	11	30		50850	14	5	13	*	32	58439	30	6	7		40
44889	25	1	5	*	28	50902	27	0	7	31		58572	25	2	11		36
45023	26	4	4	31		50985	15	8	12	35		58707	25	5	10	*	38
45156	21	0	8	27		51036	27	3	6	*	33	58841	26	8	9		41
45157	26	7	3	*	33	51170	28	6	5	36		58974	21	4	13		37
45239	9	8	13	31		51303	23	2	9	32		59108	21	7	12	*	39
45291	21	3	7	*	29	51438	23	5	8	*	34	59427	29	1	9	*	36
45425	22	6	6	32		51571	18	1	12	*	30	59561	30	4	8		39
45558	17	2	10	28		51572	24	8	7	37		59694	25	0	12		35
45692	17	5	9	*	30	51705	19	4	11	33		59696	30	7	7	*	41
45744	30	0	3	29		51839	19	7	10	*	35	59829	25	3	11	*	37
45825	12	1	13	*	26	52107	15	6	13	34		59963	26	6	10		40
45826	18	8	8	33		52158	27	1	7	*	32	60230	21	5	13	*	38
45878	30	3	2	*	31	52292	28	4	6	35		60365	22	8	12		41
45960	13	4	12	29		52425	23	0	10	31		60683	30	2	9		38
46094	13	7	11	*	31	52427	28	7	5	*	37	60818	30	5	8	*	40
46145	26	2	5	30		52560	23	3	9	*	33	60951	25	1	12	*	36
46279	26	5	4	*	32	52694	24	6	8	36		61085	26	4	11		39
46413	21	1	8	*	28	52827	19	2	12	32		61219	26	7	10	*	41
46414	27	8	3	35		52961	19	5	11	*	34	61487	22	6	13		40
46547	22	4	7	31		53095	20	8	10	37		61805	30	0	10		37
46680	17	0	11	27		53363	15	7	13	*	35	61940	30	3	9	*	39
46681	22	7	6	*	33	53414	28	2	7	34		62207	26	2	12		38
46814	17	3	10	*	29	53549	28	5	6	*	36	62341	26	5	11	*	40
46948	18	6	9	32		53682	23	1	10	*	32	62475	27	8	10		43
47000	30	1	3	*	30	53683	29	8	5	39		62743	22	7	13	*	41
47082	13	2	13	28		53816	24	4	9	35		63062	30	1	10	*	38
47216	13	5	12	*	30	53949	19	0	13	31		63329	26	0	13		37

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)
00419	0	3	0	3	16481	0	3.	7	11	23348	6	1	7	14
01541	0	1	1	2	16615	0	6	6 *	13	23349	11	8	2 *	20
01675	0	4	0 *	4	16666	13	1	0	12	23482	6	4	6 *	16
02797	0	2	1 *	3	16934	8	0	3 *	10	23615	1	0	10 *	12
02931	1	5	0	6	17068	9	3	2	13	23617	7	7	5	19
03919	0	0	2 *	2	17202	9	6	1 *	15	23750	2	3	9	15
04053	1	3	1	5	17335	4	2	5 *	11	23884	2	6	8 *	17
04188	1	6	0 *	7	17469	5	5	4	14	23935	15	1	2	16
05175	1	1	2	4	17603	0	1	8	10	24070	15	4	1 *	18
05310	1	4	1 *	6	17604	5	8	3 *	16	24203	10	0	5 *	14
05444	2	7	0	9	17737	0	4	7 *	12	24204	16	7	0	21
06030	5	0	0 *	4	17871	1	7	6	15	24337	11	3	4	17
06432	1	2	2 *	5	17923	13	2	0 *	13	24471	11	6	3 *	19
06566	2	5	1	8	18190	9	1	3	12	24604	6	2	7 *	15
06700	2	8	0 *	10	18324	9	4	2 *	14	24739	7	5	6	18
07286	6	1	0	6	18457	4	0	6 *	10	24790	19	0	0 *	16
07554	1	0	3 *	4	18458	10	7	1	17	24872	2	1	10	14
07688	2	3	2	7	18591	5	3	5	13	24873	7	8	5 *	20
07822	2	6	1 *	9	18726	5	6	4 *	15	25006	2	4	9 *	16
08543	6	2	0 *	7	18859	0	2	8 *	11	25140	3	7	8	19
08810	2	1	3	6	18993	1	5	7	14	25192	15	2	2 *	17
08944	2	4	2 *	8	19045	13	0	1 *	12	25326	16	5	1	20
09078	3	7	1	11	19127	1	8	6 *	16	25459	11	1	5	16
09665	6	0	1 *	6	19179	14	3	0	15	25460	16	8	0 *	22
09799	7	3	0	9	19446	9	2	3 *	13	25593	11	4	4 *	18
10066	2	2	3 *	7	19580	10	5	2	16	25726	6	0	8 *	14
10200	3	5	2	10	19714	5	1	6	12	25727	12	7	3	21
10335	3	8	1 *	12	19715	10	8	1 *	18	25861	7	3	7	17
10921	7	1	1	8	19848	5	4	5 *	14	25995	7	6	6 *	19
11055	7	4	0 *	10	19981	0	0	9 *	10	26046	20	1	0	18
11188	2	0	4 *	6	19982	6	7	4	17	26128	2	2	10 *	15
11322	3	3	3	9	20115	1	3	8	13	26262	3	5	9	18
11457	3	6	2 *	11	20249	1	6	7 *	15	26314	15	0	3 *	16
12177	7	2	1 *	9	20301	14	1	1	14	26396	3	8	8 *	20
12311	8	5	0	12	20435	14	4	0 *	16	26448	16	3	2	19
12444	3	1	4	8	20568	9	0	4 *	12	26582	16	6	1 *	21
12579	3	4	3 *	10	20702	10	3	3	15	26715	11	2	5 *	17
12713	4	7	2	13	20837	10	6	2 *	17	26849	12	5	4	20
13299	7	0	2 *	8	20970	5	2	6 *	13	26983	7	1	8	16
13433	8	3	1	11	21104	6	5	5	16	26984	12	8	3 *	22
13568	8	6	0 *	13	21237	1	1	9	12	27117	7	4	7 *	18
13701	3	2	4 *	9	21238	6	8	4 *	18	27250	2	0	11 *	14
13835	4	5	3	12	21371	1	4	8 *	14	27251	8	7	6	21
13969	4	8	2 *	14	21506	2	7	7	17	27303	20	2	0 *	19
14237	0	7	5	13	21557	14	2	1 *	15	27384	3	3	10	17
14555	8	1	2	10	21691	15	5	0	18	27518	3	6	9 *	19
14690	8	4	1 *	12	21824	10	1	4	14	27570	16	1	3	18
14823	3	0	5 *	8	21959	10	4	3 *	16	27704	16	4	2 *	20
14824	9	7	0	15	22092	5	0	7 *	12	27837	11	0	6 *	16
14957	4	3	4	11	22093	11	7	2	19	27838	17	7	1	23
15091	4	6	3 *	13	22226	6	3	6	15	27971	12	3	5	19
15359	0	5	6	12	22360	6	6	5 *	17	28106	12	6	4 *	21
15410	12	0	0 *	10	22493	1	2	9 *	13	28239	7	2	8 *	17
15493	0	8	5 *	14	22628	2	5	8	16	28373	8	5	7	20
15812	8	2	2 *	11	22679	14	0	2 *	14	28425	20	0	1 *	18
15946	9	5	1	14	22762	2	8	7 *	18	28506	3	1	11	16
16079	4	1	5	10	22813	15	3	1	17	28507	8	8	6 *	22
16080	9	8	0 *	16	22948	15	6	0 *	19	28559	21	3	0	21
16213	4	4	4 *	12	23081	10	2	4 *	15	28640	3	4	10 *	18
16347	5	7	3	15	23215	11	5	3	18	28775	4	7	9	21

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)
28826	16	2	3 *	19	33583	17	0	5 *	20	37939	28	3	0	27
28960	17	5	2	22	33584	23	7	0	27	38020	10	4	10 *	24
29094	12	1	6	18	33665	5	8	10 *	24	38155	11	7	9	27
29095	17	8	1 *	24	33717	18	3	4	23	38206	23	2	3 *	25
29228	12	4	5 *	20	33851	18	6	3 *	25	38288	6	3	13	23
29361	7	0	9 *	16	33933	1	7	13	23	38340	24	5	2	28
29362	13	7	4	23	33984	13	2	7 *	21	38422	6	6	12 *	25
29495	8	3	8	19	34119	14	5	6	24	38474	19	1	6	24
29629	8	6	7 *	21	34170	26	0	0 *	22	38475	24	8	1 *	30
29681	21	1	1	20	34252	9	1	10	20	38608	19	4	5 *	26
29762	3	2	11 *	17	34253	14	8	5 *	26	38741	14	0	9 *	22
29815	21	4	0 *	22	34386	9	4	9 *	22	38742	20	7	4	29
29897	4	5	10	20	34519	4	0	13 *	18	38875	15	3	8	25
29948	16	0	4 *	18	34520	10	7	8	25	39009	15	6	7 *	27
30031	4	8	9 *	22	34572	22	2	2 *	23	39061	28	1	1	26
30082	17	3	3	21	34653	5	3	12	21	39142	10	2	11 *	23
30217	17	6	2 *	23	34706	23	5	1	26	39195	28	4	0 *	28
30298	0	7	12	21	34788	5	6	11 *	23	39277	11	5	10	26
30350	12	2	6 *	19	34839	18	1	5	22	39328	23	0	4 *	24
30484	13	5	5	22	34840	23	8	0 *	28	39411	11	8	9 *	28
30617	8	1	9	18	34973	18	4	4 *	24	39462	24	3	3	27
30618	13	8	4 *	24	35106	13	0	8 *	20	39544	6	4	13 *	24
30751	8	4	8 *	20	35107	19	7	3	27	39597	24	6	2 *	29
30884	3	0	12 *	16	35189	1	8	13 *	24	39678	7	7	12	27
30886	9	7	7	23	35241	14	3	7	23	39730	19	2	6 *	25
30937	21	2	1 *	21	35375	14	6	6 *	25	39864	20	5	5	28
31019	4	3	11	19	35426	27	1	0	24	39997	15	1	9	24
31071	22	5	0	24	35508	9	2	10 *	21	39998	20	8	4 *	30
31153	4	6	10 *	21	35642	10	5	9	24	40131	15	4	8 *	26
31204	17	1	4	20	35694	22	0	3 *	22	40264	10	0	12 *	22
31339	17	4	3 *	22	35775	5	1	13	20	40266	16	7	7	29
31420	0	5	13	20	35776	10	8	8 *	26	40317	28	2	1 *	27
31472	12	0	7 *	18	35828	23	3	2	25	40399	11	3	11	25
31473	18	7	2	25	35910	5	4	12 *	22	40451	29	5	0	30
31555	0	8	12 *	22	35962	23	6	1 *	27	40533	11	6	10 *	27
31606	13	3	6	21	36044	6	7	11	25	40584	24	1	4	26
31740	13	6	5 *	23	36095	18	2	5 *	23	40719	24	4	3 *	28
31873	8	2	9 *	19	36229	19	5	4	26	40800	7	5	13	26
32008	9	5	8	22	36363	14	1	8	22	40852	19	0	7 *	24
32059	21	0	2 *	20	36364	19	8	3 *	28	40853	25	7	2	31
32141	4	1	12	18	36497	14	4	7 *	24	40935	7	8	12 *	28
32142	9	8	7 *	24	36630	9	0	11	20	40986	20	3	6	27
32193	22	3	1	23	36631	15	7	6	27	41120	20	6	5 *	29
32275	4	4	11 *	20	36683	27	2	0 *	25	41253	15	2	9 *	25
32328	22	6	0 *	25	36764	10	3	10	23	41388	16	5	8	28
32409	5	7	10	23	36898	10	6	9 *	25	41439	28	0	2 *	26
32461	17	2	4 *	21	36950	23	1	3	24	41521	11	1	12	24
32595	18	5	3	24	37032	5	2	13 *	21	41522	16	8	7 *	30
32677	0	6	13 *	21	37084	23	4	2 *	26	41573	29	3	1	29
32728	13	1	7	20	37166	6	5	12	24	41655	11	4	11 *	26
32729	18	8	2 *	26	37217	18	0	6 *	22	41708	29	6	0 *	31
32862	13	4	6 *	22	37218	24	7	1	29	41789	12	7	10	29
32995	8	0	10 *	18	37300	6	8	11 *	26	41841	24	2	4 *	27
32997	14	7	5	25	37351	19	3	5	25	41975	25	5	3	30
33130	9	3	9	21	37486	19	6	4 *	27	42057	7	6	13 *	27
33264	9	6	8 *	23	37619	14	2	8 *	23	42108	20	1	7	26
33315	22	1	2	22	37753	15	5	7	26	42109	25	8	2 *	32
33397	4	2	12 *	19	37805	27	0	1	24	42242	20	4	6 *	28
33450	22	4	1 *	24	37886	10	1	11	22	42375	15	0	10 *	24
33531	5	5	11	22	37887	15	8	6 *	28	42377	21	7	5	31

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	=CH ₂			C:	NH	O -H	=CH ₂			C:	NH	O -H	=CH ₂	
42510	16	3	9	27		47267	22	8	6 *	34		54001	28	3	7	35	
42644	16	6	8 *	29		47400	17	4	10 *	30		54135	28	6	6 *	37	
42695	29	1	2	28		47535	18	7	9	33		54268	23	2	10 *	33	
42777	11	2	12 *	25		47586	30	2	3 *	31		54402	24	5	9	36	
42830	29	4	1 *	30		47668	13	3	13	29		54535	19	1	13	32	
42911	12	5	11	28		47802	13	6	12 *	31		54536	24	8	8 *	38	
42963	24	0	5 *	26		47854	26	1	6	30		54670	19	4	12 *	34	
42964	30	7	0	33		47988	26	4	5 *	32		54804	20	7	11	37	
43045	12	8	10 *	30		48121	21	0	9 *	28		55123	28	1	8	34	
43097	25	3	4	29		48122	27	7	4	35		55257	28	4	7 *	36	
43231	25	6	3 *	31		48255	22	3	8	31		55390	23	0	11 *	32	
43313	8	7	13	29		48389	22	6	7 *	33		55391	29	7	6	39	
43364	20	2	7 *	27		48522	17	2	11 *	29		55524	24	3	10	35	
43499	21	5	6	30		48657	18	5	10	32		55658	24	6	9 *	37	
43632	16	1	10	26		48708	30	0	4 *	30		55792	19	2	13 *	33	
43633	21	8	5 *	32		48791	18	8	9 *	34		55926	20	5	12	36	
43766	16	4	9 *	28		48924	13	4	13 *	30		56060	20	8	11 *	38	
43899	11	0	13 *	24		49058	14	7	12	33		56379	28	2	8 *	35	
43900	17	7	8	31		49110	26	2	6 *	31		56513	29	5	7	38	
43952	29	2	2 *	29		49244	27	5	5	34		56646	24	1	11	34	
44033	12	3	12	27		49377	22	1	9	30		56647	29	8	6 *	40	
44086	30	5	1	32		49378	27	8	4 *	36		56780	24	4	10 *	36	
44168	12	6	11 *	29		49511	22	4	8 *	32		56915	25	7	9	39	
44219	25	1	5	28		49644	17	0	12 *	28		57048	20	3	13	35	
44220	30	8	0 *	34		49646	23	7	7	35		57182	20	6	12 *	37	
44353	25	4	4 *	30		49779	18	3	11	31		57501	28	0	9 *	34	
44486	20	0	8 *	26		49913	18	6	10 *	33		57635	29	3	8	37	
44487	26	7	3	33		50180	14	5	13	32		57769	29	6	7 *	39	
44569	8	8	13 *	30		50232	26	0	7 *	30		57902	24	2	11 *	35	
44621	21	3	7	29		50315	14	8	12 *	34		58037	25	5	10	38	
44755	21	6	6 *	31		50366	27	3	6	33		58171	25	8	9 *	40	
44888	16	2	10 *	27		50500	27	6	5 *	35		58304	20	4	13 *	36	
45022	17	5	9	30		50633	22	2	9 *	31		58438	21	7	12	39	
45074	29	0	3 *	28		50768	23	5	8	34		58757	29	1	9	36	
45155	12	1	13	26		50901	18	1	12	30		58891	29	4	8 *	38	
45156	17	8	8 *	32		50902	23	8	7 *	36		59024	24	0	12 *	34	
45208	30	3	2	31		51035	18	4	11 *	32		59026	30	7	7	41	
45290	12	4	12 *	28		51169	19	7	10	35		59159	25	3	11	37	
45342	30	6	1 *	33		51437	14	6	13 *	33		59293	25	6	10 *	39	
45424	13	7	11	31		51488	27	1	7	32		59560	21	5	13	38	
45475	25	2	5 *	29		51622	27	4	6 *	34		59695	21	8	12 *	40	
45609	26	5	4	32		51755	22	0	10 *	30		60013	29	2	9 *	37	
45743	21	1	8	28		51757	28	7	5	37		60148	30	5	8	40	
45744	26	8	3 *	34		51890	23	3	9	33		60281	25	1	12	36	
45877	21	4	7 *	30		52024	23	6	8 *	35		60282	30	8	7 *	42	
46010	16	0	11 *	26		52157	18	2	12 *	31		60415	25	4	11 *	38	
46011	22	7	6	33		52291	19	5	11	34		60549	26	7	10	41	
46144	17	3	10	29		52425	19	8	10 *	36		60817	21	6	13 *	39	
46278	17	6	9 *	31		52693	15	7	13	35		61135	29	0	10 *	36	
46330	30	1	3	30		52744	27	2	7 *	33		61270	30	3	9	39	
46412	12	2	13 *	27		52879	28	5	6	36		61404	30	6	8 *	41	
46464	30	4	2 *	32		53012	23	1	10	32		61537	25	2	12 *	37	
46546	13	5	12	30		53013	28	8	5 *	38		61671	26	5	11	40	
46597	25	0	6 *	28		53146	23	4	9 *	34		61805	26	8	10 *	42	
46680	13	8	11 *	32		53279	18	0	13 *	30		62073	22	7	13	41	
46731	26	3	5	31		53280	24	7	8	37		62392	30	1	10	38	
46866	26	6	4 *	33		53413	19	3	12	33		62526	30	4	9 *	40	
46999	21	2	8 *	29		53548	19	6	11 *	35		62659	25	0	13 *	36	
47133	22	5	7	32		53866	27	0	8 *	32		62793	26	3	12	39	
47266	17	1	11	28		53949	15	8	13 *	36		62928	26	6	11 *	41	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x				Mass Defect	Composition C: NH O -H -(CH ₂) x			
01005	0	4	0	4	16532	9	6	1	15	23214	2	6	8	17
02127	0	2	1	3	16665	4	2	5	11	23265	14	1	2	* 15
02261	0	5	0 *	5	16799	4	5	4 *	13	23400	15	4	1	18
03249	0	0	2	2	16934	5	8	3	16	23533	10	0	5	14
03383	0	3	1 *	4	17067	0	4	7	12	23534	15	7	0 *	20
03518	1	6	0	7	17201	0	7	6 *	14	23667	10	3	4 *	16
04505	0	1	2 *	3	17253	13	2	0	13	23801	11	6	3	19
04640	1	4	1	6	17520	8	1	3 *	11	23934	6	2	7	15
04774	1	7	0 *	8	17654	9	4	2	14	24069	6	5	6 *	17
05360	5	0	0	4	17787	4	0	6	10	24120	19	0	0	16
05762	1	2	2	5	17788	9	7	1 *	16	24202	1	1	10 *	13
05896	1	5	1 *	7	17921	4	3	5 *	12	24203	7	8	5	20
06030	2	8	0	10	18056	5	6	4	15	24336	2	4	9	16
06616	5	1	0 *	5	18189	0	2	8	11	24470	2	7	8 *	18
06884	1	0	3	4	18323	0	5	7 *	13	24522	15	2	2	17
07018	1	3	2 *	6	18375	13	0	1	12	24656	15	5	1 *	19
07152	2	6	1	9	18457	1	8	6	16	24789	10	1	5 *	15
07873	6	2	0	7	18509	13	3	0 *	14	24790	16	8	0	22
08140	1	1	3 *	5	18776	9	2	3	13	24923	11	4	4	18
08274	2	4	2	8	18910	9	5	2 *	15	25056	6	0	8	14
08408	2	7	1 *	10	19044	4	1	6 *	11	25057	11	7	3 *	20
08995	6	0	1	6	19045	10	8	1	18	25191	6	3	7 *	16
09129	6	3	0 *	8	19178	5	4	5	14	25325	7	6	6	19
09396	2	2	3	7	19311	0	0	9	10	25376	19	1	0 *	17
09530	2	5	2 *	9	19312	5	7	4 *	16	25458	2	2	10	15
09665	3	8	1	12	19445	0	3	8 *	12	25592	2	5	9 *	17
10251	6	1	1 *	7	19579	1	6	7	15	25644	15	0	3	16
10385	7	4	0	10	19631	13	1	1	* 13	25726	3	8	8	20
10518	2	0	4	6	19765	14	4	0	16	25778	15	3	2 *	18
10652	2	3	3 *	8	19898	9	0	4	12	25912	16	6	1	21
10787	3	6	2	11	20032	9	3	3 *	14	26045	11	2	5	17
11507	7	2	1	9	20167	10	6	2	17	26179	11	5	4 *	19
11641	7	5	0 *	11	20300	5	2	6	13	26313	6	1	8 *	15
11774	2	1	4 *	7	20434	5	5	5 *	15	26314	12	8	3	22
11909	3	4	3	10	20567	0	1	9 *	11	26447	7	4	7	18
12043	3	7	2 *	12	20568	6	8	4	18	26580	2	0	11	14
12629	7	0	2	8	20701	1	4	8	14	26581	7	7	6 *	20
12763	7	3	1 *	10	20836	1	7	7 *	16	26633	20	2	0	19
12898	8	6	0	13	20887	14	2	1	15	26714	2	3	10 *	16
13031	3	2	4	9	21021	14	5	0 *	17	26848	3	6	9	19
13165	3	5	3 *	11	21154	9	1	4 *	13	26900	15	1	3 *	17
13299	4	8	2	14	21289	10	4	3	16	27034	16	4	2	20
13885	7	1	2 *	9	21422	5	0	7	12	27167	11	0	6	16
14020	8	4	1	12	21423	10	7	2 *	18	27168	16	7	1 *	22
14153	3	0	5	8	21556	5	3	6 *	14	27301	11	3	5 *	18
14154	8	7	0 *	14	21690	6	6	5	17	27436	12	6	4	21
14287	3	3	4 *	10	21823	1	2	9	13	27569	7	2	8	17
14421	4	6	3	13	21958	1	5	8 *	15	27703	7	5	7 *	19
14740	12	0	0	10	22009	14	0	2	14	27755	20	0	1	18
14823	0	8	5	14	22092	2	8	7	18	27836	2	1	11 *	15
15142	8	2	2	11	22143	14	3	1	* 16	27837	8	8	6	22
15276	8	5	1 *	13	22278	15	6	0	19	27889	20	3	0 *	20
15409	3	1	5 *	9	22411	10	2	4	15	27970	3	4	10	18
15410	9	8	0	16	22545	10	5	3 *	17	28105	3	7	9 *	20
15543	4	4	4	12	22678	5	1	7 *	13	28156	16	2	3	19
15677	4	7	3 *	14	22679	11	8	2	20	28290	16	5	2 *	21
15945	0	6	6	13	22812	6	4	6	16	28424	11	1	6 *	17
15996	12	1	0 *	11	22945	1	0	10	12	28425	17	8	1	24
16264	8	0	3	10	22947	6	7	5 *	18	28558	12	4	5	20
16398	8	3	2 *	12	23080	1	3	9 *	14	28691	7	0	9	16

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
28692	12	7	4 *	22		33500	26	0	0	22		37805	24	8	1	30	
28825	7	3	8 *	18		33582	8	1	10 *	19		37938	19	4	5	26	
28959	8	6	7	21		33583	14	8	5	26		38071	14	0	9	22	
29011	20	1	1 *	19		33716	9	4	9	22		38072	19	7	4 *	28	
29092	3	2	11	17		33849	4	0	13	18		38205	14	3	8 *	24	
29145	21	4	0	22		33850	9	7	8 *	24		38339	15	6	7	27	
29227	3	5	10 *	19		33902	22	2	2	23		38391	27	1	1 *	25	
29278	16	0	4	18		33983	4	3	12 *	20		38472	10	2	11	23	
29361	4	8	9	22		34036	22	5	1 *	25		38525	28	4	0	28	
29412	16	3	3 *	20		34118	5	6	11	23		38607	10	5	10 *	25	
29547	17	6	2	23		34169	17	1	5 *	21		38658	23	0	4	24	
29680	12	2	6	19		34170	23	8	0	28		38741	11	8	9	28	
29814	12	5	5 *	21		34303	18	4	4	24		38792	23	3	3 *	26	
29947	7	1	9 *	17		34436	13	0	8	20		38874	6	4	13	24	
29948	13	8	4	24		34437	18	7	3 *	26		38927	24	6	2	29	
30081	8	4	8	20		34519	1	8	13	24		39008	6	7	12 *	26	
30214	3	0	12	16		34571	13	3	7 *	22		39060	19	2	6	25	
30216	8	7	7 *	22		34705	14	6	6	25		39194	19	5	5 *	27	
30267	21	2	1	21		34756	26	1	0 *	23		39327	14	1	9 *	23	
30349	3	3	11 *	18		34838	9	2	10	21		39328	20	8	4	30	
30401	21	5	0 *	23		34972	9	5	9 *	23		39461	15	4	8	26	
30483	4	6	10	21		35024	22	0	3	22		39594	10	0	12	22	
30534	16	1	4 *	19		35105	4	1	13 *	19		39596	15	7	7 *	28	
30669	17	4	3	22		35106	10	8	8	26		39647	28	2	1	27	
30802	12	0	7	18		35158	22	3	2 *	24		39729	10	3	11 *	24	
30803	17	7	2 *	24		35240	5	4	12	22		39781	28	5	0 *	29	
30885	0	8	12	22		35292	23	6	1	27		39863	11	6	10	27	
30936	12	3	6 *	20		35374	5	7	11 *	24		39914	23	1	4 *	25	
31070	13	6	5	23		35425	18	2	5	23		40049	24	4	3	28	
31203	8	2	9	19		35559	18	5	4 *	25		40130	6	5	13 *	25	
31338	8	5	8 *	21		35693	13	1	8 *	21		40182	19	0	7	24	
31389	21	0	2	20		35694	19	8	3	28		40183	24	7	2 *	30	
31471	3	1	12 *	17		35827	14	4	7	24		40265	7	8	12	28	
31472	9	8	7	24		35960	9	0	11	20		40316	19	3	6 *	26	
31523	21	3	1 *	22		35961	14	7	6 *	26		40450	20	6	5	29	
31605	4	4	11	20		36013	27	2	0	25		40583	15	2	9	25	
31658	22	6	0	25		36094	9	3	10 *	22		40718	15	5	8 *	27	
31739	4	7	10 *	22		36228	10	6	9	25		40769	28	0	2	26	
31791	17	2	4	21		36280	22	1	3 *	23		40851	10	1	12 *	23	
31925	17	5	3 *	23		36362	5	2	13	21		40852	16	8	7	30	
32007	0	6	13	21		36414	23	4	2	26		40903	28	3	1 *	28	
32058	12	1	7 *	19		36496	5	5	12 *	23		40985	11	4	11	26	
32059	18	8	2	26		36547	18	0	6	22		41038	29	6	0	31	
32192	13	4	6	22		36548	23	7	1 *	28		41119	11	7	10 *	28	
32325	8	0	10	18		36630	6	8	11	26		41171	24	2	4	27	
32327	13	7	5 *	24		36681	18	3	5 *	24		41305	24	5	3 *	29	
32460	8	3	9 *	20		36816	19	6	4	27		41387	7	6	13	27	
32594	9	6	8	23		36949	14	2	8	23		41438	19	1	7 *	25	
32645	21	1	2 *	21		37083	14	5	7 *	25		41439	25	8	2	32	
32727	4	2	12	19		37135	27	0	1	24		41572	20	4	6	28	
32780	22	4	1	24		37216	9	1	11 *	21		41705	15	0	10	24	
32861	4	5	11 *	21		37217	15	8	6	28		41707	20	7	5 *	30	
32913	17	0	5	20		37269	27	3	0 *	26		41840	15	3	9 *	26	
32914	22	7	0 *	26		37350	10	4	10	24		41974	16	6	8	29	
32995	5	8	10	24		37485	10	7	9 *	26		42025	28	1	2 *	27	
33047	17	3	4 *	22		37536	23	2	3	25		42107	11	2	12	25	
33181	18	6	3	25		37618	5	3	13 *	22		42160	29	4	1	30	
33263	0	7	13 *	22		37670	23	5	2 *	27		42241	11	5	11 *	27	
33314	13	2	7	21		37752	6	6	12	25		42293	24	0	5	26	
33449	13	5	6 *	23		37804	18	1	6 *	23		42294	29	7	0 *	32	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
42375	12	8	10	30		47184	25	1	6	* 29		53865	18	1	13	* 31	
42427	24	3	4	* 28		47318	26	4	5	32		53866	24	8	8	38	
42561	25	6	3	31		47451	21	0	9	28		54000	19	4	12	34	
42643	7	7	13	* 28		47452	26	7	4	* 34		54134	19	7	11	* 36	
42694	20	2	7	27		47585	21	3	8	* 30		54453	27	1	8	* 33	
42829	20	5	6	* 29		47719	22	6	7	33		54587	28	4	7	36	
42962	15	1	10	* 25		47852	17	2	11	29		54720	23	0	11	32	
42963	21	8	5	32		47987	17	5	10	* 31		54721	28	7	6	* 38	
43096	16	4	9	28		48038	30	0	4	30		54854	23	3	10	* 34	
43229	11	0	13	24		48121	18	8	9	34		54988	24	6	9	37	
43230	16	7	8	* 30		48172	30	3	3	* 32		55122	19	2	13	33	
43282	29	2	2	29		48254	13	4	13	30		55256	19	5	12	* 35	
43363	11	3	12	* 26		48388	13	7	12	* 32		55390	20	8	11	38	
43416	29	5	1	* 31		48440	26	2	6	31		55709	28	2	8	35	
43498	12	6	11	29		48574	26	5	5	* 33		55843	28	5	7	* 37	
43549	24	1	5	* 27		48707	21	1	9	* 29		55976	23	1	11	* 33	
43550	30	8	0	34		48708	27	8	4	36		55977	29	8	6	40	
43683	25	4	4	30		48841	22	4	8	32		56110	24	4	10	36	
43816	20	0	8	26		48974	17	0	12	28		56245	24	7	9	* 38	
43817	25	7	3	* 32		48976	22	7	7	* 34		56378	19	3	13	* 34	
43899	8	8	13	30		49109	17	3	11	* 30		56512	20	6	12	37	
43951	20	3	7	* 28		49243	18	6	10	33		56831	28	0	9	34	
44085	21	6	6	31		49294	30	1	4	* 31		56965	28	3	8	* 36	
44218	16	2	10	27		49510	13	5	13	* 31		57099	29	6	7	39	
44352	16	5	9	* 29		49562	26	0	7	30		57232	24	2	11	35	
44404	29	0	3	28		49645	14	8	12	34		57367	24	5	10	* 37	
44485	11	1	13	* 25		49696	26	3	6	* 32		57501	25	8	9	40	
44486	17	8	8	32		49830	27	6	5	35		57634	20	4	13	36	
44538	29	3	2	* 30		49963	22	2	9	31		57768	20	7	12	* 38	
44620	12	4	12	28		50098	22	5	8	* 33		58087	28	1	9	* 35	
44672	30	6	1	33		50231	17	1	12	* 29		58221	29	4	8	38	
44754	12	7	11	* 30		50232	23	8	7	36		58354	24	0	12	34	
44805	25	2	5	29		50365	18	4	11	32		58356	29	7	7	* 40	
44939	25	5	4	* 31		50499	18	7	10	* 34		58489	24	3	11	* 36	
45073	20	1	8	* 27		50767	14	6	13	33		58623	25	6	10	39	
45074	26	8	3	34		50818	26	1	7	* 31		58890	20	5	13	* 37	
45207	21	4	7	30		50952	27	4	6	34		59025	21	8	12	40	
45340	16	0	11	26		51085	22	0	10	30		59343	29	2	9	37	
45341	21	7	6	* 32		51087	27	7	5	* 36		59478	29	5	8	* 39	
45474	16	3	10	* 28		51220	22	3	9	* 32		59611	24	1	12	* 35	
45608	17	6	9	31		51354	23	6	8	35		59612	30	8	7	42	
45660	29	1	3	* 29		51487	18	2	12	31		59745	25	4	11	38	
45742	12	2	13	27		51621	18	5	11	* 33		59879	25	7	10	* 40	
45794	30	4	2	32		51755	19	8	10	36		60147	21	6	13	39	
45876	12	5	12	* 29		52023	14	7	13	* 34		60465	29	0	10	36	
45927	25	0	6	28		52074	27	2	7	33		60600	29	3	9	* 38	
45928	30	7	1	* 34		52209	27	5	6	* 35		60734	30	6	8	41	
46010	13	8	11	32		52342	22	1	10	* 31		60867	25	2	12	37	
46061	25	3	5	* 30		52343	28	8	5	38		61001	25	5	11	* 39	
46196	26	6	4	33		52476	23	4	9	34		61135	26	8	10	42	
46329	21	2	8	29		52609	18	0	13	30		61403	21	7	13	* 40	
46463	21	5	7	* 31		52610	23	7	8	* 36		61722	29	1	10	* 37	
46596	16	1	11	* 27		52743	18	3	12	* 32		61856	30	4	9	40	
46597	22	8	6	34		52878	19	6	11	35		61989	25	0	13	36	
46730	17	4	10	30		53196	27	0	8	32		61990	30	7	8	* 42	
46865	17	7	9	* 32		53279	15	8	13	36		62123	25	3	12	* 38	
46916	30	2	3	31		53331	27	3	7	* 34		62258	26	6	11	41	
46998	12	3	13	* 28		53465	28	6	6	37		62659	22	8	13	42	
47050	30	5	2	* 33		53598	23	2	10	33		62978	30	2	10	39	
47132	13	6	12	31		53732	23	5	9	* 35		63112	30	5	9	* 41	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)
01591	0	5	0	5	16583	12	2	0	* 12	23399	6	5	6	17
02713	0	3	1	4	16850	8	1	3	* 11	23450	18	0	0	* 15
02848	0	6	0	* 6	16984	8	4	2	* 13	23532	1	1	10	13
03835	0	1	2	3	17117	3	0	6	* 9	23533	6	8	5	* 19
03970	0	4	1	* 5	17118	9	7	1	16	23666	1	4	9	* 15
04104	1	7	0	8	17251	4	3	5	12	23800	2	7	8	18
04690	4	0	0	* 3	17386	4	6	4	* 14	23852	14	2	2	* 16
05092	0	2	2	* 4	17653	0	5	7	13	23986	15	5	1	19
05226	1	5	1	7	17705	12	0	1	* 11	24119	10	1	5	15
05360	1	8	0	* 9	17787	0	8	6	* 15	24120	15	8	0	* 21
05946	5	1	0	5	17839	13	3	0	14	24253	10	4	4	* 17
06214	0	0	3	* 3	18106	8	2	3	* 12	24386	5	0	8	* 13
06348	1	3	2	6	18240	9	5	2	15	24387	11	7	3	20
06482	1	6	1	* 8	18374	4	1	6	11	24521	6	3	7	16
07203	5	2	0	* 6	18375	9	8	1	* 17	24655	6	6	6	* 18
07470	1	1	3	5	18508	4	4	5	* 13	24706	19	1	0	17
07604	1	4	2	* 7	18642	5	7	4	16	24788	1	2	10	* 14
07738	2	7	1	10	18775	0	3	8	12	24922	2	5	9	17
08325	5	0	1	* 5	18909	0	6	7	* 14	24974	14	0	3	* 15
08459	6	3	0	8	18961	13	1	1	13	25056	2	8	8	* 19
08726	1	2	3	* 6	19095	13	4	0	* 15	25108	15	3	2	18
08860	2	5	2	9	19228	8	0	4	* 11	25242	15	6	1	* 20
08995	2	8	1	* 11	19362	9	3	3	14	25375	10	2	5	* 16
09581	6	1	1	7	19497	9	6	2	* 16	25509	11	5	4	19
09715	6	4	0	* 9	19630	4	2	6	* 12	25643	6	1	8	15
09848	1	0	4	* 5	19764	5	5	5	15	25644	11	8	3	* 21
09982	2	3	3	8	19897	0	1	9	11	25777	6	4	7	* 17
10117	2	6	2	* 10	19898	5	8	4	* 17	25910	1	0	11	* 13
10837	6	2	1	* 8	20031	0	4	8	* 13	25911	7	7	6	20
10971	7	5	0	11	20166	1	7	7	16	25963	19	2	0	* 18
11104	2	1	4	7	20217	13	2	1	* 14	26044	2	3	10	16
11239	2	4	3	* 9	20351	14	5	0	17	26178	2	6	9	* 18
11373	3	7	2	12	20484	9	1	4	13	26230	15	1	3	17
11959	6	0	2	* 7	20619	9	4	3	* 15	26364	15	4	2	* 19
12093	7	3	1	10	20752	4	0	7	* 11	26497	10	0	6	* 15
12228	7	6	0	* 12	20753	10	7	2	18	26498	16	7	1	22
12361	2	2	4	* 8	20886	5	3	6	14	26631	11	3	5	18
12495	3	5	3	11	21020	5	6	5	* 16	26766	11	6	4	* 20
12629	3	8	2	* 13	21153	0	2	9	* 12	26899	6	2	8	* 16
13215	7	1	2	9	21288	1	5	8	15	27033	7	5	7	19
13350	7	4	1	* 11	21339	13	0	2	* 13	27085	19	0	1	* 17
13483	2	0	5	* 7	21422	1	8	7	* 17	27166	2	1	11	15
13484	8	7	0	14	21473	14	3	1	16	27167	7	8	6	* 21
13617	3	3	4	10	21608	14	6	0	* 18	27219	20	3	0	20
13751	3	6	3	* 12	21741	9	2	4	* 14	27300	2	4	10	* 17
14070	11	0	0	* 9	21875	10	5	3	17	27435	3	7	9	20
14472	7	2	2	* 10	22008	5	1	7	13	27486	15	2	3	* 18
14606	8	5	1	13	22009	10	8	2	* 19	27620	16	5	2	21
14739	3	1	5	9	22142	5	4	6	* 15	27754	11	1	6	17
14740	8	8	0	* 15	22275	0	0	10	* 11	27755	16	8	1	* 23
14873	3	4	4	* 11	22277	6	7	5	18	27888	11	4	5	* 19
15007	4	7	3	14	22410	1	3	9	14	28021	6	0	9	* 15
15326	12	1	0	11	22544	1	6	8	* 16	28022	12	7	4	22
15594	7	0	3	* 9	22595	14	1	2	15	28155	7	3	8	18
15728	8	3	2	12	22730	14	4	1	* 17	28289	7	6	7	* 20
15862	8	6	1	* 14	22863	9	0	5	* 13	28341	20	1	1	19
15995	3	2	5	* 10	22864	15	7	0	20	28422	2	2	11	* 16
16129	4	5	4	13	22997	10	3	4	16	28475	20	4	0	* 21
16264	4	8	3	* 15	23131	10	6	3	* 18	28557	3	5	10	19
16531	0	7	6	14	23264	5	2	7	* 14	28608	15	0	4	* 17

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
28691	3	8	9 *	21		33499	17	1	5	21		37988	22	0	4 *	23	
28742	16	3	3	20		33500	22	8	0 *	27		38071	10	8	9 *	27	
28877	16	6	2 *	22		33633	17	4	4 *	23		38122	23	3	3	26	
29010	11	2	6 *	18		33766	12	0	8 *	19		38204	5	4	13 *	23	
29144	12	5	5	21		33767	18	7	3	26		38257	23	6	2 *	28	
29277	7	1	9	17		33849	0	8	13 *	23		38338	6	7	12	26	
29278	12	8	4 *	23		33901	13	3	7	22		38390	18	2	6 *	24	
29411	7	4	8 *	19		34035	13	6	6 *	24		38524	19	5	5	27	
29544	2	0	12 *	15		34086	26	1	0	23		38657	14	1	9	23	
29546	8	7	7	22		34168	8	2	10 *	20		38658	19	8	4 *	29	
29597	20	2	1 *	20		34302	9	5	9	23		38791	14	4	8 *	25	
29679	3	3	11	18		34354	21	0	3 *	21		38924	9	0	12 *	21	
29731	21	5	0	23		34435	4	1	13	19		38926	15	7	7	28	
29813	3	6	10 *	20		34436	9	8	8 *	25		38977	27	2	1 *	26	
29864	16	1	4	19		34488	22	3	2	24		39059	10	3	11	24	
29999	16	4	3 *	21		34570	4	4	12 *	21		39111	28	5	0	29	
30132	11	0	7 *	17		34622	22	6	1 *	26		39193	10	6	10 *	26	
30133	17	7	2	24		34704	5	7	11	24		39244	23	1	4	25	
30266	12	3	6	20		34755	17	2	5 *	22		39379	23	4	3 *	27	
30400	12	6	5 *	22		34889	18	5	4	25		39460	6	5	13	25	
30533	7	2	9 *	18		35023	13	1	8	21		39512	18	0	7 *	23	
30668	8	5	8	21		35024	18	8	3 *	27		39513	24	7	2	30	
30719	20	0	2 *	19		35157	13	4	7 *	23		39595	6	8	12 *	27	
30801	3	1	12	17		35290	8	0	11 *	19		39646	19	3	6	26	
30802	8	8	7 *	23		35291	14	7	6	26		39780	19	6	5 *	28	
30853	21	3	1	22		35343	26	2	0 *	24		39913	14	2	9 *	24	
30935	3	4	11 *	19		35424	9	3	10	22		40048	15	5	8	27	
30988	21	6	0 *	24		35558	9	6	9 *	24		40099	27	0	2 *	25	
31069	4	7	10	22		35610	22	1	3	23		40181	10	1	12	23	
31121	16	2	4 *	20		35692	4	2	13 *	20		40182	15	8	7 *	29	
31255	17	5	3	23		35744	22	4	2 *	25		40233	28	3	1	28	
31388	12	1	7	19		35826	5	5	12	23		40315	10	4	11 *	25	
31389	17	8	2 *	25		35877	17	0	6 *	21		40368	28	6	0 *	30	
31522	12	4	6 *	21		35878	23	7	1	28		40449	11	7	10	28	
31655	7	0	10 *	17		35960	5	8	11 *	25		40501	23	2	4 *	26	
31657	13	7	5	24		36011	18	3	5	24		40635	24	5	3	29	
31790	8	3	9	20		36146	18	6	4 *	26		40717	6	6	13 *	26	
31924	8	6	8 *	22		36279	13	2	8 *	22		40768	19	1	7	25	
31975	21	1	2	21		36413	14	5	7	25		40769	24	8	2 *	31	
32057	3	2	12 *	18		36465	26	0	1 *	23		40902	19	4	6 *	27	
32110	21	4	1 *	23		36546	9	1	11	21		41035	14	0	10 *	23	
32191	4	5	11	21		36547	14	8	6 *	27		41037	20	7	5	30	
32243	16	0	5 *	19		36599	27	3	0	26		41170	15	3	9	26	
32244	22	7	0	26		36680	9	4	10 *	23		41304	15	6	8 *	28	
32325	4	8	10 *	23		36815	10	7	9	26		41355	28	1	2	27	
32377	17	3	4	22		36866	22	2	3 *	24		41437	10	2	12 *	24	
32511	17	6	3 *	24		36948	5	3	13	22		41490	28	4	1 *	29	
32593	0	7	13	22		37000	23	5	2	27		41571	11	5	11	27	
32644	12	2	7 *	20		37082	5	6	12 *	24		41623	23	0	5 *	25	
32779	13	5	6	23		37134	18	1	6	23		41624	29	7	0	32	
32830	25	0	0 *	21		37135	23	8	1 *	29		41705	11	8	10 *	29	
32912	8	1	10	19		37268	18	4	5 *	25		41757	24	3	4	28	
32913	13	8	5 *	25		37401	13	0	9 *	21		41891	24	6	3 *	30	
33046	8	4	9 *	21		37402	19	7	4	28		41973	7	7	13	28	
33179	3	0	13 *	17		37535	14	3	8	24		42024	19	2	7 *	26	
33180	9	7	8	24		37669	14	6	7 *	26		42159	20	5	6	29	
33232	21	2	2 *	22		37721	27	1	1	25		42292	15	1	10	25	
33313	4	3	12	20		37802	9	2	11 *	22		42293	20	8	5 *	31	
33366	22	5	1	25		37855	27	4	0 *	27		42426	15	4	9 *	27	
33448	4	6	11 *	22		37937	10	5	10	25		42559	10	0	13 *	23	

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
42560	16	7	8	30		47451	17	8	9	* 33		53917	27	4	7	* 35	
42612	28	2	2	* 28		47502	30	3	3	32		54050	22	0	11	* 31	
42693	11	3	12	26		47584	12	4	13	* 29		54051	28	7	6	38	
42746	29	5	1	31		47637	30	6	2	* 34		54184	23	3	10	34	
42828	11	6	11	* 28		47718	13	7	12	32		54318	23	6	9	* 36	
42879	24	1	5	27		47770	25	2	6	* 30		54452	18	2	13	* 32	
42880	29	8	0	* 33		47904	26	5	5	33		54586	19	5	12	35	
43013	24	4	4	* 29		48037	21	1	9	29		54720	19	8	11	* 37	
43146	19	0	8	* 25		48038	26	8	4	* 35		55039	27	2	8	* 34	
43147	25	7	3	32		48171	21	4	8	* 31		55173	28	5	7	37	
43229	7	8	13	* 29		48304	16	0	12	* 27		55306	23	1	11	33	
43281	20	3	7	28		48306	22	7	7	34		55307	28	8	6	* 39	
43415	20	6	6	* 30		48439	17	3	11	30		55440	23	4	10	* 35	
43548	15	2	10	* 26		48573	17	6	10	* 32		55575	24	7	9	38	
43682	16	5	9	29		48624	30	1	4	31		55708	19	3	13	34	
43734	28	0	3	* 27		48759	30	4	3	* 33		55842	19	6	12	* 36	
43815	11	1	13	25		48840	13	5	13	31		56161	27	0	9	* 33	
43816	16	8	8	* 31		48892	25	0	7	* 29		56295	28	3	8	36	
43868	29	3	2	30		48975	13	8	12	* 33		56429	28	6	7	* 38	
43950	11	4	12	* 27		49026	26	3	6	32		56562	23	2	11	* 34	
44002	29	6	1	* 32		49160	26	6	5	* 34		56697	24	5	10	37	
44084	12	7	11	30		49293	21	2	9	* 30		56831	24	8	9	* 39	
44135	24	2	5	* 28		49428	22	5	8	33		56964	19	4	13	* 35	
44269	25	5	4	31		49561	17	1	12	29		57098	20	7	12	38	
44403	20	1	8	27		49562	22	8	7	* 35		57417	28	1	9	35	
44404	25	8	3	* 33		49695	17	4	11	* 31		57551	28	4	8	* 37	
44537	20	4	7	* 29		49829	18	7	10	34		57684	23	0	12	* 33	
44670	15	0	11	* 25		49881	30	2	4	* 32		57686	29	7	7	40	
44671	21	7	6	32		50097	13	6	13	* 32		57819	24	3	11	36	
44804	16	3	10	28		50148	26	1	7	31		57953	24	6	10	* 38	
44938	16	6	9	* 30		50282	26	4	6	* 33		58220	20	5	13	37	
44990	29	1	3	29		50415	21	0	10	* 29		58355	20	8	12	* 39	
45072	11	2	13	* 26		50417	27	7	5	36		58673	28	2	9	* 36	
45124	29	4	2	* 31		50550	22	3	9	32		58808	29	5	8	39	
45206	12	5	12	29		50684	22	6	8	* 34		58941	24	1	12	35	
45257	24	0	6	* 27		50817	17	2	12	* 30		58942	29	8	7	* 41	
45258	30	7	1	34		50951	18	5	11	33		59075	24	4	11	* 37	
45340	12	8	11	* 31		51003	30	0	5	* 31		59209	25	7	10	40	
45391	25	3	5	30		51085	18	8	10	* 35		59477	20	6	13	* 38	
45526	25	6	4	* 32		51353	14	7	13	34		59795	28	0	10	* 35	
45659	20	2	8	* 28		51404	26	2	7	* 32		59930	29	3	9	38	
45793	21	5	7	31		51539	27	5	6	35		60064	29	6	8	* 40	
45926	16	1	11	27		51672	22	1	10	31		60197	24	2	12	* 36	
45927	21	8	6	* 33		51673	27	8	5	* 37		60331	25	5	11	39	
46060	16	4	10	* 29		51806	22	4	9	* 33		60465	25	8	10	* 41	
46195	17	7	9	32		51939	17	0	13	* 29		60733	21	7	13	40	
46246	29	2	3	* 30		51940	23	7	8	36		61052	29	1	10	37	
46328	12	3	13	28		52073	18	3	12	32		61186	29	4	9	* 39	
46380	30	5	2	33		52208	18	6	11	* 34		61319	24	0	13	* 35	
46462	12	6	12	* 30		52526	26	0	8	* 31		61320	30	7	8	42	
46514	25	1	6	29		52609	14	8	13	* 35		61453	25	3	12	38	
46515	30	8	1	* 35		52661	27	3	7	34		61588	25	6	11	* 40	
46648	25	4	5	* 31		52795	27	6	6	* 36		61989	21	8	13	* 41	
46781	20	0	9	* 27		52928	22	2	10	* 32		62308	29	2	10	* 38	
46782	26	7	4	34		53062	23	5	9	35		62442	30	5	9	41	
46915	21	3	8	30		53195	18	1	13	31		62575	25	1	13	37	
47049	21	6	7	* 32		53196	23	8	8	* 37		62576	30	8	8	* 43	
47182	16	2	11	* 28		53330	18	4	12	* 33		62710	25	4	12	* 39	
47317	17	5	10	31		53464	19	7	11	36		62844	26	7	11	42	
47368	29	0	4	* 29		53783	27	1	8	33		63430	29	0	11	* 37	

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
02178	0	6	0	6		16448	8	7	1 *	15		23316	14	5	1 *	18	
03300	0	4	1	5		16581	3	3	5 *	11		23449	9	1	5 *	14	
03434	0	7	0 *	7		16716	4	6	4	14		23450	15	8	0	21	
04020	4	0	0	3		17035	12	0	1	11		23583	10	4	4	17	
04422	0	2	2	4		17117	0	8	6	15		23716	5	0	8	13	
04556	0	5	1 *	6		17169	12	3	0 *	13		23717	10	7	3 *	19	
04690	1	8	0	9		17436	8	2	3	12		23851	5	3	7 *	15	
05276	4	1	0 *	4		17570	8	5	2 *	14		23985	6	6	6	18	
05544	0	0	3	3		17704	3	1	6 *	10		24036	18	1	0 *	16	
05678	0	3	2 *	5		17705	9	8	1	17		24118	1	2	10	14	
05812	1	6	1	8		17838	4	4	5	13		24252	1	5	9 *	16	
06533	5	2	0	6		17972	4	7	4 *	15		24304	14	0	3	15	
06800	0	1	3 *	4		18239	0	6	7	14		24386	2	8	8	19	
06934	1	4	2	7		18291	12	1	1 *	12		24438	14	3	2 *	17	
07068	1	7	1 *	9		18425	13	4	0	15		24572	15	6	1	20	
07655	5	0	1	5		18558	8	0	4	11		24705	10	2	5	16	
07789	5	3	0 *	7		18692	8	3	3 *	13		24839	10	5	4 *	18	
08056	1	2	3	6		18827	9	6	2	16		24973	5	1	8 *	14	
08190	1	5	2 *	8		18960	4	2	6	12		24974	11	8	3	21	
08325	2	8	1	11		19094	4	5	5 *	14		25107	6	4	7	17	
08911	5	1	1 *	6		19228	5	8	4	17		25240	1	0	11	13	
09045	6	4	0	9		19361	0	4	8	13		25241	6	7	6 *	19	
09178	1	0	4	5		19496	0	7	7 *	15		25293	19	2	0	18	
09312	1	3	3 *	7		19547	13	2	1	14		25374	1	3	10 *	15	
09447	2	6	2	10		19681	13	5	0 *	16		25508	2	6	9	18	
10167	6	2	1	8		19814	8	1	4 *	12		25560	14	1	3 *	16	
10301	6	5	0 *	10		19949	9	4	3	15		25694	15	4	2	19	
10434	1	1	4 *	6		20082	4	0	7	11		25827	10	0	6	15	
10569	2	4	3	9		20083	9	7	2 *	17		25828	15	7	1 *	21	
10703	2	7	2 *	11		20216	4	3	6 *	13		25961	10	3	5 *	17	
11289	6	0	2	7		20350	5	6	5	16		26096	11	6	4	20	
11423	6	3	1 *	9		20483	0	2	9	12		26229	6	2	8	16	
11558	7	6	0	12		20618	0	5	8 *	14		26363	6	5	7 *	18	
11691	2	2	4	8		20669	13	0	2	13		26415	19	0	1	17	
11825	2	5	3 *	10		20752	1	8	7	17		26496	1	1	11 *	14	
11959	3	8	2	13		20803	13	3	1 *	15		26497	7	8	6	21	
12545	6	1	2 *	8		20938	14	6	0	18		26549	19	3	0 *	19	
12680	7	4	1	11		21071	9	2	4	14		26630	2	4	10	17	
12813	2	0	5	7		21205	9	5	3 *	16		26765	2	7	9 *	19	
12814	7	7	0 *	13		21338	4	1	7 *	12		26816	15	2	3	18	
12947	2	3	4 *	9		21339	10	8	2	19		26950	15	5	2	20	
13081	3	6	3	12		21472	5	4	6	15		27084	10	1	6 *	16	
13400	11	0	0	9		21605	0	0	10	11		27085	16	8	1	23	
13802	7	2	2	10		21607	5	7	5 *	17		27218	11	4	5	19	
13936	7	5	1 *	12		21740	0	3	9 *	13		27351	6	0	9	15	
14069	2	1	5 *	8		21874	1	6	8	16		27352	11	7	4 *	21	
14070	8	8	0	15		21925	13	1	2 *	14		27485	6	3	8 *	17	
14203	3	4	4	11		22060	14	4	1	17		27619	7	6	7	20	
14337	3	7	3 *	13		22193	9	0	5	13		27671	19	1	1	18	
14656	11	1	0 *	10		22194	14	7	0 *	19		27752	2	2	11	16	
14924	7	0	3	9		22327	9	3	4 *	15		27805	20	4	0	21	
15058	7	3	2 *	11		22461	10	6	3	18		27887	2	5	10 *	18	
15192	8	6	1	14		22594	5	2	7	14		27938	15	0	4	17	
15325	3	2	5	10		22729	5	5	6 *	16		28021	3	8	9	21	
15459	3	5	4 *	12		22780	18	0	0	15		28072	15	3	3 *	19	
15594	4	8	3	15		22862	0	1	10 *	12		28207	16	6	2	22	
15913	12	2	0	12		22863	6	8	5	19		28340	11	2	6	18	
16180	7	1	3 *	10		22996	1	4	9	15		28474	11	5	5 *	20	
16314	8	4	2	13		23130	1	7	8 *	17		28607	6	1	9 *	16	
16447	3	0	6	9		23182	14	2	2	16		28608	12	8	4	23	

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
28741	7	4	8	19		33416	25	1	0	* 22		37987	13	1	9	* 22	
28874	2	0	12	15		33498	8	2	10	20		37988	19	8	4	29	
28876	7	7	7	* 21		33632	8	5	9	* 22		38121	14	4	8	25	
28927	20	2	1	20		33684	21	0	3	21		38254	9	0	12	* 21	
29009	2	3	11	* 17		33765	3	1	13	* 18		38256	14	7	7	* 27	
29061	20	5	0	* 22		33766	9	8	8	25		38307	27	2	1	26	
29143	3	6	10	20		33818	21	3	2	* 23		38389	9	3	11	* 23	
29194	15	1	4	* 18		33900	4	4	12	21		38441	27	5	0	* 28	
29329	16	4	3	21		33952	22	6	1	26		38523	10	6	10	26	
29462	11	0	7	17		34034	4	7	11	* 23		38574	22	1	4	* 24	
29463	16	7	2	* 23		34085	17	2	5	22		38709	23	4	3	27	
29596	11	3	6	* 19		34219	17	5	4	* 24		38790	5	5	13	* 24	
29730	12	6	5	22		34353	12	1	8	* 20		38842	18	0	7	23	
29863	7	2	9	18		34354	18	8	3	27		38843	23	7	2	* 29	
29998	7	5	8	* 20		34487	13	4	7	23		38925	6	8	12	27	
30049	20	0	2	19		34620	8	0	11	19		38976	18	3	6	* 25	
30131	2	1	12	* 16		34621	13	7	6	* 25		39110	19	6	5	28	
30132	8	8	7	23		34673	26	2	0	24		39243	14	2	9	24	
30183	20	3	1	* 21		34754	8	3	10	* 21		39378	14	5	8	* 26	
30265	3	4	11	19		34888	9	6	9	24		39429	27	0	2	25	
30318	21	6	0	24		34940	21	1	3	* 22		39511	9	1	12	* 22	
30399	3	7	10	* 21		35022	4	2	13	20		39512	15	8	7	29	
30451	16	2	4	20		35074	22	4	2	25		39563	27	3	1	* 27	
30585	16	5	3	* 22		35156	4	5	12	* 22		39645	10	4	11	25	
30718	11	1	7	* 18		35207	17	0	6	21		39698	28	6	0	30	
30719	17	8	2	25		35208	22	7	1	* 27		39779	10	7	10	* 27	
30852	12	4	6	21		35290	5	8	11	25		39831	23	2	4	26	
30985	7	0	10	17		35341	17	3	5	* 23		39965	23	5	3	* 28	
30987	12	7	5	* 23		35476	18	6	4	26		40047	6	6	13	26	
31120	7	3	9	* 19		35609	13	2	8	22		40098	18	1	7	* 24	
31254	8	6	8	22		35743	13	5	7	* 24		40099	24	8	2	31	
31305	20	1	2	* 20		35795	26	0	1	23		40232	19	4	6	27	
31387	3	2	12	18		35876	8	1	11	* 20		40365	14	0	10	23	
31440	21	4	1	23		35877	14	8	6	27		40367	19	7	5	* 29	
31521	3	5	11	* 20		35929	26	3	0	* 25		40500	14	3	9	* 25	
31573	16	0	5	19		36010	9	4	10	23		40634	15	6	8	28	
31574	21	7	0	* 25		36145	9	7	9	* 25		40685	27	1	2	* 26	
31655	4	8	10	23		36196	22	2	3	24		40767	10	2	12	24	
31707	16	3	4	* 21		36278	4	3	13	* 21		40820	28	4	1	29	
31841	17	6	3	24		36330	22	5	2	* 26		40901	10	5	11	* 26	
31974	12	2	7	20		36412	5	6	12	24		40953	23	0	5	25	
32109	12	5	6	* 22		36464	17	1	6	* 22		40954	28	7	0	* 31	
32160	25	0	0	21		36465	23	8	1	29		41035	11	8	10	29	
32242	7	1	10	* 18		36598	18	4	5	25		41087	23	3	4	* 27	
32243	13	8	5	25		36731	13	0	9	21		41221	24	6	3	30	
32376	8	4	9	21		36732	18	7	4	* 27		41303	6	7	13	* 27	
32509	3	0	13	17		36865	13	3	8	* 23		41354	19	2	7	26	
32510	8	7	8	* 23		36999	14	6	7	26		41489	19	5	6	* 28	
32562	21	2	2	22		37051	26	1	1	* 24		41622	14	1	10	* 24	
32643	3	3	12	* 19		37132	9	2	11	22		41623	20	8	5	31	
32696	21	5	1	* 24		37185	27	4	0	27		41756	15	4	9	27	
32778	4	6	11	22		37267	9	5	10	* 24		41889	10	0	13	23	
32829	16	1	5	* 20		37318	22	0	4	23		41890	15	7	8	* 29	
32830	22	8	0	27		37401	10	8	9	27		41942	28	2	2	28	
32963	17	4	4	23		37452	22	3	3	* 25		42023	10	3	12	* 25	
33096	12	0	8	19		37534	5	4	13	23		42076	28	5	1	* 30	
33097	17	7	3	* 25		37587	23	6	2	28		42158	11	6	11	28	
33179	0	8	13	23		37668	5	7	12	* 25		42209	23	1	5	* 26	
33231	12	3	7	* 21		37720	18	2	6	24		42210	29	8	0	33	
33365	13	6	6	24		37854	18	5	5	* 26		42343	24	4	4	29	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x
42476	19	0	8	25		47368	26	8	4	35		53648	23	6	9	36	
42477	24	7	3	• 31		47501	21	4	8	31		53782	18	2	13	32	
42559	7	8	13	• 29		47634	16	0	12	27		53916	18	5	12	• 34	
42611	19	3	7	• 27		47636	21	7	7	• 33		54050	19	8	11	37	
42745	20	6	6	30		47769	16	3	11	• 29		54369	27	2	8	34	
42878	15	2	10	26		47903	17	6	10	32		54503	27	5	7	• 36	
43012	15	5	9	• 28		47954	29	1	4	* 30		54636	22	1	11	• 32	
43064	28	0	3	27		48089	30	4	3	33		54637	28	8	6	39	
43145	10	1	13	• 24		48170	12	5	13	• 30		54770	23	4	10	35	
43146	16	8	8	31		48222	25	0	7	29		54905	23	7	9	• 37	
43198	28	3	2	• 29		48223	30	7	2	• 35		55038	18	3	13	• 33	
43280	11	4	12	27		48305	13	8	12	33		55172	19	6	12	36	
43332	29	6	1	32		48356	25	3	6	* 31		55491	27	0	9	33	
43414	11	7	11	• 29		48490	26	6	5	34		55625	27	3	8	• 35	
43465	24	2	5	28		48623	21	2	9	30		55759	28	6	7	38	
43599	24	5	4	• 30		48758	21	5	8	• 32		55892	23	2	11	34	
43733	19	1	8	• 26		48891	16	1	12	• 28		56027	23	5	10	* 36	
43734	25	8	3	33		48892	22	8	7	35		56161	24	8	9	39	
43867	20	4	7	29		49025	17	4	11	31		56294	19	4	13	35	
44000	15	0	11	25		49159	17	7	10	• 33		56428	19	7	12	• 37	
44001	20	7	6	* 31		49211	30	2	4	32		56747	27	1	9	* 34	
44134	15	3	10	• 27		49345	30	5	3	• 34		56881	28	4	8	37	
44268	16	6	9	30		49427	13	6	13	32		57014	23	0	12	33	
44320	28	1	3	* 28		49478	25	1	7	* 30		57016	28	7	7	• 39	
44402	11	2	13	26		49612	26	4	6	33		57149	23	3	11	• 35	
44454	29	4	2	31		49745	21	0	10	29		57283	24	6	10	38	
44536	11	5	12	* 28		49747	26	7	5	• 35		57550	19	5	13	• 36	
44587	24	0	6	27		49880	21	3	9	• 31		57685	20	8	12	39	
44588	29	7	1	• 33		50014	22	6	8	34		58003	28	2	9	36	
44670	12	8	11	31		50147	17	2	12	30		58138	28	5	8	* 38	
44721	24	3	5	* 29		50281	17	5	11	• 32		58271	23	1	12	• 34	
44856	25	6	4	32		50333	30	0	5	31		58272	29	8	7	41	
44989	20	2	8	28		50415	18	8	10	35		58405	24	4	11	37	
45123	20	5	7	* 30		50467	30	3	4	• 33		58539	24	7	10	* 39	
45256	15	1	11	* 26		50683	13	7	13	* 33		58807	20	6	13	38	
45257	21	8	6	33		50734	26	2	7	32		59125	28	0	10	35	
45390	16	4	10	29		50869	26	5	6	• 34		59260	28	3	9	* 37	
45525	16	7	9	• 31		51002	21	1	10	• 30		59394	29	6	8	40	
45576	29	2	3	30		51003	27	8	5	37		59527	24	2	12	36	
45658	11	3	13	* 27		51136	22	4	9	33		59661	24	5	11	* 38	
45710	29	5	2	* 32		51269	17	0	13	29		59795	25	8	10	41	
45792	12	6	12	30		51270	22	7	8	• 35		60063	20	7	13	* 39	
45844	24	1	6	* 28		51403	17	3	12	• 31		60382	28	1	10	* 36	
45845	30	8	1	35		51538	18	6	11	34		60516	29	4	9	39	
45978	25	4	5	31		51589	30	1	5	* 32		60649	24	0	13	35	
46111	20	0	9	27		51856	26	0	8	31		60650	29	7	8	* 41	
46112	25	7	4	* 33		51939	14	8	13	35		60783	24	3	12	* 37	
46245	20	3	8	* 29		51991	26	3	7	* 33		60918	25	6	11	40	
46379	21	6	7	32		52125	27	6	6	36		61319	21	8	13	41	
46512	16	2	11	28		52258	22	2	10	32		61638	29	2	10	38	
46647	16	5	10	* 30		52392	22	5	9	* 34		61772	29	5	9	* 40	
46698	29	0	4	29		52525	17	1	13	• 30		61905	24	1	13	* 36	
46781	17	8	9	33		52526	23	8	8	37		61906	30	8	8	43	
46832	29	3	3	* 31		52660	18	4	12	33		62040	25	4	12	39	
46914	12	4	13	29		52794	18	7	11	* 35		62174	25	7	11	* 41	
46967	30	6	2	34		53113	26	1	8	* 32		62760	29	0	11	37	
47048	12	7	12	* 31		53247	27	4	7	35		62894	29	3	10	* 39	
47100	25	2	6	30		53380	22	0	11	31		63028	30	6	9	42	
47234	25	5	5	* 32		53381	27	7	6	* 37		63162	25	2	13	38	
47367	20	1	9	* 28		53514	22	3	10	* 33		63296	25	5	12	* 40	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x	
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)	
02764	0	7	0	*	7	16499	12	3	0	*	13	23448	0	2	10	*	13	
03350	3	0	0	*	2	16766	7	2	3	*	11	23582	1	5	9	*	16	
03886	0	5	1		6	16900	8	5	2		14	23634	13	0	3	*	14	
04020	0	8	0	*	8	17034	3	1	6		10	23716	1	8	8	*	18	
04606	4	1	0		4	17035	8	8	1	*	16	23768	14	3	2		17	
05008	0	3	2		5	17168	3	4	5	*	12	23902	14	6	1	*	19	
05142	0	6	1	*	7	17302	4	7	4		15	24035	9	2	5	*	15	
05863	4	2	0	*	5	17621	12	1	1		12	24169	10	5	4		18	
06130	0	1	3		4	17755	12	4	0	*	14	24303	5	1	8		14	
06264	0	4	2	*	6	17888	7	0	4	*	10	24304	10	8	3	*	20	
06398	1	7	1		9	18022	8	3	3		13	24437	5	4	7	*	16	
06985	4	0	1	*	4	18157	8	6	2	*	15	24570	0	0	11	*	12	
07119	5	3	0		7	18290	3	2	6	*	11	24571	6	7	6		19	
07386	0	2	3	*	5	18424	4	5	5		14	24623	18	2	0	*	17	
07520	1	5	2		8	18558	4	8	4	*	16	24704	1	3	10		15	
07655	1	8	1	*	10	18826	0	7	7		15	24838	1	6	9	*	17	
08241	5	1	1		6	18877	12	2	1	*	13	24890	14	1	3		16	
08375	5	4	0	*	8	19011	13	5	0		16	25024	14	4	2	*	18	
08508	0	0	4	*	4	19144	8	1	4		12	25157	9	0	6	*	14	
08642	1	3	3		7	19279	8	4	3	*	14	25158	15	7	1		21	
08777	1	6	2	*	9	19412	3	0	7	*	10	25291	10	3	5		17	
09497	5	2	1	*	7	19413	9	7	2		17	25426	10	6	4	*	19	
09631	6	5	0		10	19546	4	3	6		13	25559	5	2	8	*	15	
09764	1	1	4		6	19680	4	6	5	*	15	25693	6	5	7		18	
09899	1	4	3	*	8	19948	0	5	8		14	25745	18	0	1	*	16	
10033	2	7	2		11	19999	12	0	2	*	12	25826	1	1	11		14	
10619	5	0	2	*	6	20082	0	8	7	*	16	25827	6	8	6	*	20	
10753	6	3	1		9	20133	13	3	1		15	25879	19	3	0		19	
10888	6	6	0	*	11	20268	13	6	0	*	17	25960	1	4	10	*	16	
11021	1	2	4	*	7	20401	8	2	4	*	13	26095	2	7	9		19	
11155	2	5	3		10	20535	9	5	3		16	26146	14	2	3	*	17	
11289	2	8	2	*	12	20668	4	1	7		12	26280	15	5	2		20	
11875	6	1	2		8	20669	9	8	2	*	18	26414	10	1	6		16	
12010	6	4	1	*	10	20802	4	4	6	*	14	26415	15	8	1	*	22	
12143	1	0	5	*	6	20937	5	7	5		17	26548	10	4	5	*	18	
12144	7	7	0		13	21070	0	3	9		13	26681	5	0	9	*	14	
12277	2	3	4		9	21204	0	6	8	*	15	26682	11	7	4		21	
12411	2	6	3	*	11	21255	13	1	2		14	26815	6	3	8		17	
12730	10	0	0	*	8	21390	13	4	1	*	16	26949	6	6	7	*	19	
13132	6	2	2	*	9	21523	8	0	5	*	12	27001	19	1	1		18	
13266	7	5	1		12	21524	14	7	0		19	27082	1	2	11	*	15	
13399	2	1	5		8	21657	9	3	4		15	27135	19	4	0	*	20	
13400	7	8	0	*	14	21791	9	6	3	*	17	27217	2	5	10		18	
13533	2	4	4	*	10	21924	4	2	7	*	13	27268	14	0	4	*	16	
13667	3	7	3		13	22059	5	5	6		16	27351	2	8	9	*	20	
13986	11	1	0		10	22110	17	0	0	*	14	27402	15	3	3		19	
14254	6	0	3	*	8	22192	0	1	10		12	27537	15	6	2	*	21	
14388	7	3	2		11	22193	5	8	5	*	18	27670	10	2	6	*	17	
14522	7	6	1	*	13	22326	0	4	9	*	14	27804	11	5	5		20	
14655	2	2	5	*	9	22460	1	7	8		17	27937	6	1	9		16	
14789	3	5	4		12	22512	13	2	2	*	15	27938	11	8	4	*	22	
14924	3	8	3	*	14	22646	14	5	1		18	28071	6	4	8	*	18	
15243	11	2	0	*	11	22779	9	1	5		14	28204	1	0	12	*	14	
15510	7	1	3		10	22780	14	8	0	*	20	28206	7	7	7		21	
15644	7	4	2	*	12	22913	9	4	4	*	16	28257	19	2	1	*	19	
15777	2	0	6	*	8	23046	4	0	8	*	12	28339	2	3	11		17	
15778	8	7	1		15	23047	10	7	3		19	28391	20	5	0		22	
15911	3	3	5		11	23181	5	3	7		15	28473	2	6	10	*	19	
16046	3	6	4	*	13	23315	5	6	6	*	17	28524	15	1	4		18	
16365	11	0	1	*	10	23366	18	1	0		16	28659	15	4	3	*	20	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x		
	C:	NH	0	-H	=CH ₂)		C:	NH	0	-H	=CH ₂)		C:	NH	0	-H	=CH ₂)		
28792	10	0	7	*	16		33415	16	2	5	*	21		38039	22	4	3	*	26
28793	16	7	2		23		33549	17	5	4		24		38120	5	5	13		24
28926	11	3	6		19		33683	12	1	8		20		38172	17	0	7	*	22
29060	11	6	5	*	21		33684	17	8	3	*	26		38173	23	7	2		29
29193	6	2	9	*	17		33817	12	4	7	*	22		38255	5	8	12	*	26
29328	7	5	8		20		33950	7	0	11	*	18		38306	18	3	6		25
29379	19	0	2	*	18		33951	13	7	6		25		38440	18	6	5	*	27
29461	2	1	12		16		34003	25	2	0	*	23		38573	13	2	9	*	23
29462	7	8	7	*	22		34084	8	3	10		21		38708	14	5	8		26
29513	20	3	1		21		34218	8	6	9	*	23		38759	26	0	2	*	24
29595	2	4	11	*	18		34270	21	1	3		22		38841	9	1	12		22
29648	20	6	0	*	23		34352	3	2	13	*	19		38842	14	8	7	*	28
29729	3	7	10		21		34404	21	4	2	*	24		38893	27	3	1		27
29781	15	2	4	*	19		34486	4	5	12		22		38975	9	4	11	*	24
29915	16	5	3		22		34537	16	0	6	*	20		39028	27	6	0	*	29
30048	11	1	7		18		34538	22	7	1		27		39109	10	7	10		27
30049	16	8	2	*	24		34620	4	8	11	*	24		39161	22	2	4	*	25
30182	11	4	6	*	20		34671	17	3	5		23		39295	23	5	3		28
30315	6	0	10	*	16		34806	17	6	4	*	25		39377	5	6	13	*	25
30317	12	7	5		23		34939	12	2	8	*	21		39428	18	1	7		24
30450	7	3	9		19		35073	13	5	7		24		39429	23	8	2	*	30
30584	7	6	8	*	21		35125	25	0	1	*	22		39562	18	4	6	*	26
30635	20	1	2		20		35206	8	1	11		20		39695	13	0	10	*	22
30717	2	2	12	*	17		35207	13	8	6	*	26		39697	19	7	5		29
30770	20	4	1	*	22		35259	26	3	0		25		39830	14	3	9		25
30851	3	5	11		20		35340	8	4	10	*	22		39964	14	6	8	*	27
30903	15	0	5	*	18		35475	9	7	9		25		40015	27	1	2		26
30904	21	7	0		25		35526	21	2	3	*	23		40097	9	2	12	*	23
30985	3	8	10	*	22		35608	4	3	13		21		40150	27	4	1	*	28
31037	16	3	4		21		35660	22	5	2		26		40231	10	5	11		26
31171	16	6	3	*	23		35742	4	6	12	*	23		40283	22	0	5	*	24
31304	11	2	7	*	19		35794	17	1	5		22		40284	28	7	0		31
31439	12	5	6		22		35795	22	8	1	*	28		40365	10	8	10	*	28
31490	24	0	0	*	20		35928	17	4	5	*	24		40417	23	3	4		27
31572	7	1	10		18		36061	12	0	9	*	20		40551	23	6	3	*	29
31573	12	8	5	*	24		36062	18	7	4		27		40633	6	7	13		27
31706	7	4	9	*	20		36195	13	3	8		23		40684	18	2	7	*	25
31839	2	0	13	*	16		36329	13	6	7	*	25		40819	19	5	6		28
31840	8	7	8		23		36381	26	1	1		24		40952	14	1	10		24
31892	20	2	2	*	21		36462	8	2	11	*	21		40953	19	8	5	*	30
31973	3	3	12		19		36515	26	4	0	*	26		41086	14	4	9	*	26
32026	21	5	1		24		36597	9	5	10		24		41219	9	0	13	*	22
32108	3	6	11	*	21		36648	21	0	4	*	22		41220	15	7	8		29
32159	16	1	5		20		36731	9	8	9	*	26		41272	27	2	2	*	27
32160	21	8	0	*	26		36782	22	3	3		25		41353	10	3	12		25
32293	16	4	4	*	22		36864	4	4	13	*	22		41406	28	5	1		30
32426	11	0	8	*	18		36917	22	6	2	*	27		41488	10	6	11	*	27
32427	17	7	3		25		36998	5	7	12		25		41539	23	1	5		26
32561	12	3	7		21		37050	17	2	6	*	23		41540	28	8	0	*	32
32695	12	6	6	*	23		37184	18	5	5		26		41673	23	4	4	*	28
32746	25	1	0		22		37317	13	1	9		22		41806	18	0	8	*	24
32828	7	2	10	*	19		37318	18	8	4	*	28		41807	24	7	3		31
32962	8	5	9		22		37451	13	4	8	*	24		41889	6	8	13	*	28
33014	20	0	3	*	20		37584	8	0	12	*	20		41941	19	3	7		27
33095	3	1	13		18		37586	14	7	7		27		42075	19	6	6	*	29
33096	8	8	8	*	24		37637	26	2	1	*	25		42208	14	2	10	*	25
33148	21	3	2		23		37719	9	3	11		23		42342	15	5	9		28
33230	3	4	12	*	20		37771	27	5	0		28		42394	27	0	3	*	26
33282	21	6	1	*	25		37853	9	6	10	*	25		42475	10	1	13		24
33364	4	7	11		23		37904	22	1	4		24		42476	15	8	8	*	30

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x		
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		
42528	28	3	2	*	29		47553	30	7	2	*	35		53833	27	5	7	36	
42610	10	4	12	*	26		47635	12	8	12	*	32		53966	22	1	11	32	
42662	28	6	1	*	31		47686	25	3	6	*	31		53967	27	8	6	*	38
42744	11	7	11	*	29		47820	25	6	5	*	33		54100	22	4	10	*	34
42795	23	2	5	*	27		47953	20	2	9	*	29		54235	23	7	9	37	
42929	24	5	4	30			48088	21	5	8	32			54368	18	3	13	33	
43063	19	1	8	26			48221	16	1	12	28			54502	18	6	12	*	35
43064	24	8	3	*	32		48222	21	8	7	*	34		54821	26	0	9	*	32
43197	19	4	7	*	28		48355	16	4	11	*	30		54955	27	3	8	35	
43330	14	0	11	*	24		48489	17	7	10	33			55089	27	6	7	*	37
43331	20	7	6	31			48541	29	2	4	*	31		55222	22	2	11	*	33
43464	15	3	10	27			48675	30	5	3	34			55357	23	5	10	36	
43598	15	6	9	*	29		48757	12	6	13	*	31		55491	23	8	9	*	38
43650	28	1	3	28			48808	25	1	7	30			55624	18	4	13	*	34
43732	10	2	13	*	25		48809	30	8	2	*	36		55758	19	7	12	37	
43784	28	4	2	*	30		48942	25	4	6	*	32		56077	27	1	9	34	
43866	11	5	12	28			49075	20	0	10	*	28		56211	27	4	8	*	36
43917	23	0	6	*	26		49077	26	7	5	35			56344	22	0	12	*	32
43918	29	7	1	33			49210	21	3	9	31			56346	28	7	7	39	
44000	11	8	11	*	30		49344	21	6	8	*	33		56479	23	3	11	35	
44051	24	3	5	29			49477	16	2	12	*	29		56613	23	6	10	*	37
44186	24	6	4	*	31		49611	17	5	11	32			56880	19	5	13	36	
44319	19	2	8	*	27		49663	29	0	5	*	30		57015	19	8	12	*	38
44453	20	5	7	30			49745	17	8	10	*	34		57333	27	2	9	*	35
44586	15	1	11	26			49797	30	3	4	33			57468	28	5	8	38	
44587	20	8	6	*	32		49931	30	6	3	*	35		57601	23	1	12	34	
44720	15	4	10	*	28		50013	13	7	13	33			57602	28	8	7	*	40
44855	16	7	9	31			50064	25	2	7	*	31		57735	23	4	11	*	36
44906	28	2	3	*	29		50199	26	5	6	34			57869	24	7	10	39	
44988	11	3	13	27			50332	21	1	10	30			58137	19	6	13	*	37
45040	29	5	2	32			50333	26	8	5	*	36		58455	27	0	10	*	34
45122	11	6	12	*	29		50466	21	4	9	*	32		58590	28	3	9	37	
45174	24	1	6	28			50599	16	0	13	*	28		58724	28	6	8	*	39
45175	29	8	1	*	34		50600	22	7	8	35			58857	23	2	12	*	35
45308	24	4	5	*	30		50733	17	3	12	31			58991	24	5	11	38	
45441	19	0	9	*	26		50868	17	6	11	*	33		59125	24	8	10	*	40
45442	25	7	4	33			50919	30	1	5	32			59393	20	7	13	39	
45575	20	3	8	29			51053	30	4	4	*	34		59712	28	1	10	36	
45709	20	6	7	*	31		51186	25	0	8	*	30		59846	28	4	9	*	38
45842	15	2	11	*	27		51269	13	8	13	*	34		59979	23	0	13	*	34
45977	16	5	10	30			51321	26	3	7	33			59980	29	7	8	41	
46028	28	0	4	*	28		51455	26	6	6	*	35		60113	24	3	12	37	
46111	16	8	9	*	32		51588	21	2	10	*	31		60248	24	6	11	*	39
46162	29	3	3	31			51722	22	5	9	34			60649	20	8	13	*	40
46244	11	4	13	*	28		51855	17	1	13	30			60968	28	2	10	*	37
46297	29	6	2	*	33		51856	22	8	8	*	36		61102	29	5	9	40	
46378	12	7	12	31			51990	17	4	12	*	32		61235	24	1	13	36	
46430	24	2	6	*	29		52124	18	7	11	35			61236	29	8	8	*	42
46564	25	5	5	32			52175	30	2	5	*	33		61370	24	4	12	*	38
46697	20	1	9	28			52443	26	1	8	32			61504	25	7	11	41	
46698	25	8	4	*	34		52577	26	4	7	*	34		62090	28	0	11	*	36
46831	20	4	8	*	30		52710	21	0	11	*	30		62224	29	3	10	39	
46964	15	0	12	*	26		52711	27	7	6	37			62358	29	6	9	*	41
46966	21	7	7	33			52844	22	3	10	33			62492	24	2	13	*	37
47099	16	3	11	29			52978	22	6	9	*	35		62626	25	5	12	40	
47233	16	6	10	*	31		53112	17	2	13	*	31		62760	25	8	11	*	42
47284	29	1	4	30			53246	18	5	12	34			63346	29	1	11	38	
47419	29	4	3	*	32		53297	30	0	6	*	32		63480	29	4	10	*	40
47500	12	5	13	30			53380	18	8	11	*	36		63615	30	7	9	43	
47552	24	0	7	*	28		53699	26	2	8	*	33		63748	25	3	13	39	

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x			
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)			
02680	3	0	0	2		16365	8	8	1	16		23633	4	1	8	*	13			
03350	0	8	0	8		16498	3	4	5	12		23634	10	8	3	20				
03936	3	1	0	*	3	16632	3	7	4	*	14	23767	5	4	7	16				
04472	0	6	1	7		16951	11	1	1	*	11	23900	0	0	11	12				
05193	4	2	0	5		17085	12	4	0	14		23901	5	7	6	*	18			
05594	0	4	2	6		17218	7	0	4	10		23953	18	2	0	17				
05728	0	7	1	*	8	17352	7	3	3	*	12	24034	0	3	10	*	14			
06315	4	0	1	4		17487	8	6	2	15		24168	1	6	9	17				
06449	4	3	0	*	6	17620	3	2	6	11		24220	13	1	3	*	15			
06716	0	2	3	5		17754	3	5	5	*	13	24354	14	4	2	18				
06850	0	5	2	*	7	17888	4	8	4	16		24487	9	0	6	14				
06985	1	8	1	10		18207	12	2	1	13		24488	14	7	1	*	20			
07571	4	1	1	*	5	18341	12	5	0	*	15	24621	9	3	5	*	16			
07705	5	4	0	8		18474	7	1	4	*	11	24756	10	6	4	19				
07838	0	0	4	4		18609	8	4	3	14		24889	5	2	8	15				
07972	0	3	3	*	6	18742	3	0	7	10		25023	5	5	7	*	17			
08107	1	6	2	9		18743	8	7	2	*	16	25075	18	0	1	16				
08827	5	2	1	7		18876	3	3	6	*	12	25156	0	1	11	*	13			
08961	5	5	0	*	9	19010	4	6	5	15		25157	6	8	6	20				
09094	0	1	4	*	5	19329	12	0	2	12		25209	18	3	0	*	18			
09229	1	4	3	8		19412	0	8	7	16		25290	1	4	10	16				
09363	1	7	2	*	10	19463	12	3	1	*	14	25425	1	7	9	*	18			
09949	5	0	2	6		19598	13	6	0	17		25476	14	2	3	17				
10083	5	3	1	*	8	19731	8	2	4	13		25610	14	5	2	*	19			
10218	6	6	0	11		19865	8	5	3	*	15		25744	9	1	6	*	15		
10351	1	2	4	7		19998	3	1	7	*	11		25745	15	8	1	22			
10485	1	5	3	*	9	19999	9	8	2	18			25878	10	4	5	18			
10619	2	8	2	12		20132	4	4	6	14			26011	5	0	9	14			
11205	5	1	2	*	7	20267	4	7	5	*	16		26012	10	7	4	*	20		
11340	6	4	1	10		20534	0	6	8	15			26145	5	3	8	*	16		
11473	1	0	5	6		20585	12	1	2	*	13		26279	6	6	7	19			
11474	6	7	0	*	12	20720	13	4	1	16			26331	18	1	1	*	17		
11607	1	3	4	*	8	20853	8	0	5	12			26412	1	2	11	15			
11741	2	6	3	11		20854	13	7	0	*	18		26465	19	4	0	20			
12060	10	0	0	8		20987	8	3	4	*	14		26547	1	5	10	*	17		
12462	6	2	2	9		21121	9	6	3	17			26598	14	0	4	16			
12596	6	5	1	*	11	21254	4	2	7	13			26681	2	8	9	20			
12729	1	1	5	*	7	21389	4	5	6	*	15		26732	14	3	3	*	18		
12730	7	8	0	14		21440	17	0	0	14			26867	15	6	2	21			
12863	2	4	4	10		21523	5	8	5	18			27000	10	2	6	17			
12997	2	7	3	*	12	21656	0	4	9	14			27134	10	5	5	*	19		
13316	10	1	0	*	9	21790	0	7	8	*	16		27267	5	1	9	*	15		
13584	6	0	3	8		21842	13	2	2	15			27268	11	8	4	22			
13718	6	3	2	*	10	21976	13	5	1	*	17		27401	6	4	8	18			
13852	7	6	1	13		22109	8	1	5	*	13			27534	1	0	12	14		
13985	2	2	5	9		22110	14	8	0	20			27536	6	7	7	*	20		
14119	2	5	4	*	11	22243	9	4	4	16			27587	19	2	1	19			
14254	3	8	3	14		22376	4	0	8	12			27669	1	3	11	*	16		
14573	11	2	0	11		22377	9	7	3	*	18			27721	19	5	0	*	21	
14840	6	1	3	*	9	22511	4	3	7	*	14			27803	2	6	10	19		
14974	7	4	2	12		22645	5	6	6	17			27854	14	1	4	*	17		
15107	2	0	6	8		22696	17	1	0	*	15			27989	15	4	3	20		
15108	7	7	1	*	14	22778	0	2	10	13				28122	10	0	7	16		
15241	2	3	5	*	10	22912	0	5	9	*	15			28123	15	7	2	*	22	
15376	3	6	4	13		22964	13	0	3	14				28256	10	3	6	*	18	
15695	11	0	1	10		23046	1	8	8	18				28390	11	6	5	21		
15829	11	3	0	*	12	23098	13	3	2	*	16				28523	6	2	9	17	
16096	7	2	3	11		23232	14	6	1	19				28658	6	5	8	*	19	
16230	7	5	2	*	13	23365	9	2	5	15				28709	19	0	2	18		
16364	2	1	6	*	9	23499	9	5	4	*	17				28791	1	1	12	*	15

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)
28792	7	8	7	22	33414	7	3	10	* 20	38038	13	5	8 *	25
28843	19	3	1	* 20	33548	8	6	9	23	38089	26	0	2	24
28925	2	4	11	18	33600	20	1	3	* 21	38171	8	1	12	• 21
28978	20	6	0	23	33682	3	2	13	19	38172	14	8	7	28
29059	2	7	10	* 20	33734	21	4	2	24	38223	26	3	1	• 26
29111	15	2	4	19	33816	3	5	12	* 21	38305	9	4	11	24
29245	15	5	3	* 21	33867	16	0	6	20	38358	27	6	0	29
29378	10	1	7	* 17	33868	21	7	1	* 26	38439	9	7	10	• 26
29379	16	8	2	24	33950	4	8	11	24	38491	22	2	4	25
29512	11	4	6	20	34001	16	3	5	* 22	38625	22	5	3	• 27
29645	6	0	10	16	34136	17	6	4	25	38707	5	6	13	25
29647	11	7	5	* 22	34269	12	2	8	21	38758	17	1	7	• 23
29780	6	3	9	* 18	34403	12	5	7	* 23	38759	23	8	2	30
29914	7	6	8	21	34455	25	0	1	22	38892	18	4	6	26
29965	19	1	2	* 19	34536	7	1	11	* 19	39025	13	0	10	22
30047	2	2	12	17	34537	13	8	6	26	39027	18	7	5	• 28
30100	20	4	1	22	34589	25	3	0	* 24	39160	13	3	9	• 24
30181	2	5	11	* 19	34670	8	4	10	22	39294	14	6	8	27
30233	15	0	5	18	34805	8	7	9	* 24	39345	26	1	2	• 25
30234	20	7	0	* 24	34856	21	2	3	23	39427	9	2	12	23
30315	3	8	10	22	34938	3	3	13	* 20	39480	27	4	1	28
30367	15	3	4	* 20	34990	21	5	2	* 25	39561	9	5	11	• 25
30501	16	6	3	23	35072	4	6	12	23	39613	22	0	5	24
30634	11	2	7	19	35124	16	1	6	* 21	39614	27	7	0	* 30
30769	11	5	6	* 21	35125	22	8	1	28	39695	10	8	10	28
30820	24	0	0	20	35258	17	4	5	24	39747	22	3	4	• 26
30902	6	1	10	* 17	35391	12	0	9	20	39881	23	6	3	29
30903	12	8	5	24	35392	17	7	4	* 26	39963	5	7	13	* 26
31036	7	4	9	20	35525	12	3	8	* 22	40014	18	2	7	25
31169	2	0	13	16	35659	13	6	7	25	40149	18	5	6	• 27
31170	7	7	8	* 22	35711	25	1	1	* 23	40282	13	1	10	* 23
31222	20	2	2	21	35792	8	2	11	21	40283	19	8	5	30
31303	2	3	12	* 18	35845	26	4	0	26	40416	14	4	9	26
31356	20	5	1	* 23	35927	8	5	10	* 23	40549	9	0	13	22
31438	3	6	11	21	35978	21	0	4	22	40550	14	7	8	• 28
31489	15	1	5	* 19	36061	9	8	9	26	40602	27	2	2	27
31490	21	8	0	26	36112	21	3	3	* 24	40683	9	3	12	• 24
31623	16	4	4	22	36194	4	4	13	22	40736	27	5	1	* 29
31756	11	0	8	18	36247	22	6	2	27	40818	10	6	11	27
31757	16	7	3	* 24	36328	4	7	12	* 24	40869	22	1	5	• 25
31891	11	3	7	* 20	36380	17	2	6	23	40870	28	8	0	32
32025	12	6	6	23	36514	17	5	5	* 25	41003	23	4	4	28
32076	24	1	0	* 21	36647	12	1	9	* 21	41136	18	0	8	24
32158	7	2	10	19	36648	18	8	4	28	41137	23	7	3	• 30
32292	7	5	9	* 21	36781	13	4	8	24	41219	6	8	13	28
32344	20	0	3	20	36914	8	0	12	20	41271	18	3	7	• 26
32425	2	1	13	* 17	36916	13	7	7	* 26	41405	19	6	6	29
32426	8	8	8	24	36967	26	2	1	25	41538	14	2	10	25
32478	20	3	2	* 22	37049	8	3	11	* 22	41672	14	5	9	* 27
32560	3	4	12	20	37101	26	5	0	* 27	41724	27	0	3	26
32612	21	6	1	25	37183	9	6	10	25	41805	9	1	13	* 23
32694	3	7	11	* 22	37234	21	1	4	* 23	41806	15	8	8	30
32745	16	2	5	21	37369	22	4	3	26	41858	27	3	2	* 28
32879	16	5	4	* 23	37450	4	5	13	* 23	41940	10	4	12	26
33013	11	1	8	* 19	37502	17	0	7	22	41992	28	6	1	31
33014	17	8	3	26	37503	22	7	2	* 28	42074	10	7	11	* 28
33147	12	4	7	22	37585	5	8	12	26	42125	23	2	5	27
33280	7	0	11	18	37636	17	3	6	* 24	42259	23	5	4	* 29
33281	12	7	6	* 24	37770	18	6	5	27	42393	18	1	8	* 25
33333	25	2	0	23	37903	13	2	9	23	42394	24	8	3	32

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	<u>Composition</u>				x	Mass Defect	<u>Composition</u>				x	Mass Defect	<u>Composition</u>				x	
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)	
42527	19	4	7	28		47685	16	4	11	30		53698	17	3	13	• 32		
42660	14	0	11	24		47819	16	7	10	* 32		53832	18	6	12	35		
42661	19	7	6	• 30		47871	29	2	4	31		53884	30	1	6	* 33		
42794	14	3	10	• 26		48005	29	5	3	* 33		54151	26	0	9	32		
42928	15	6	9	29		48087	12	6	13	31		54285	26	3	8	• 34		
42980	27	1	3	* 27		48138	24	1	7	• 29		54419	27	6	7	37		
43062	10	2	13	25		48139	30	8	2	36		54552	22	2	11	33		
43114	28	4	2	30		48272	25	4	6	32		54687	22	5	10	* 35		
43196	10	5	12	* 27		48405	20	0	10	28		54821	23	8	9	38		
43247	23	0	6	26		48407	25	7	5	• 34		54954	18	4	13	34		
43248	28	7	1	• 32		48540	20	3	9	• 30		55088	18	7	12	• 36		
43330	11	8	11	30		48674	21	6	8	33		55407	26	1	9	* 33		
43381	23	3	5	* 28		48807	16	2	12	29		55541	27	4	8	36		
43516	24	6	4	31		48941	16	5	11	* 31		55674	22	0	12	32		
43649	19	2	8	27		48993	29	0	5	30		55676	27	7	7	* 38		
43783	19	5	7	* 29		49075	17	8	10	34		55809	22	3	11	• 34		
43916	14	1	11	* 25		49127	29	3	4	* 32		55943	23	6	10	37		
43917	20	8	6	32		49261	30	6	3	35		56210	18	5	13	* 35		
44050	15	4	10	28		49343	12	7	13	• 32		56345	19	8	12	38		
44185	15	7	9	• 30		49394	25	2	7	31		56663	27	2	9	35		
44236	28	2	3	29		49529	25	5	6	• 33		56798	27	5	8	* 37		
44318	10	3	13	* 26		49662	20	1	10	* 29		56931	22	1	12	• 33		
44370	28	5	2	* 31		49663	26	8	5	36		56932	28	8	7	40		
44452	11	6	12	29		49796	21	4	9	32		57065	23	4	11	36		
44504	23	1	6	* 27		49929	16	0	13	28		57199	23	7	10	• 38		
44505	29	8	1	34		49930	21	7	8	* 34		57467	19	6	13	37		
44638	24	4	5	30		50063	16	3	12	* 30		57785	27	0	10	34		
44771	19	0	9	26		50198	17	6	11	33		57920	27	3	9	* 36		
44772	24	7	4	* 32		50249	29	1	5	* 31		58054	28	6	8	39		
44905	19	3	8	* 28		50383	30	4	4	34		58187	23	2	12	35		
45039	20	6	7	31		50516	25	0	8	30		58321	23	5	11	* 37		
45172	15	2	11	27		50517	30	7	3	* 36		58455	24	8	10	40		
45307	15	5	10	* 29		50599	13	8	13	34		58723	19	7	13	* 38		
45358	28	0	4	28		50651	25	3	7	* 32		59042	27	1	10	* 35		
45441	16	8	9	32		50785	26	6	6	35		59176	28	4	9	38		
45492	28	3	3	* 30		50918	21	2	10	31		59309	23	0	13	34		
45574	11	4	13	28		51052	21	5	9	* 33		59310	28	7	8	* 40		
45627	29	6	2	33		51185	16	1	13	* 29		59443	23	3	12	* 36		
45708	11	7	12	* 30		51186	22	8	8	36		59578	24	6	11	39		
45760	24	2	6	29		51320	17	4	12	32		59979	20	8	13	40		
45894	24	5	5	* 31		51454	17	7	11	* 34		60298	28	2	10	37		
46027	19	1	9	* 27		51505	30	2	5	33		60432	28	5	9	* 39		
46028	25	8	4	34		51639	30	5	4	* 35		60565	23	1	13	* 35		
46161	20	4	8	30		51773	25	1	8	* 31		60566	29	8	8	42		
46294	15	0	12	26		51907	26	4	7	34		60700	24	4	12	38		
46296	20	7	7	* 32		52040	21	0	11	30		60834	24	7	11	* 40		
46429	15	3	11	* 28		52041	26	7	6	* 36		61420	28	0	11	36		
46563	16	6	10	31		52174	21	3	10	* 32		61554	28	3	10	* 38		
46614	28	1	4	* 29		52308	22	6	9	35		61688	29	6	9	41		
46749	29	4	3	32		52442	17	2	13	31		61822	24	2	13	37		
46830	11	5	13	* 29		52576	17	5	12	* 33		61956	24	5	12	* 39		
46882	24	0	7	28		52627	30	0	6	32		62090	25	8	11	42		
46883	29	7	2	* 34		52710	18	8	11	36		62676	28	1	11	* 37		
46965	12	8	12	32		52761	30	3	5	* 34		62810	29	4	10	40		
47016	24	3	6	* 30		53029	26	2	8	33		62945	29	7	9	* 42		
47150	25	6	5	33		53163	26	5	7	* 35		63078	24	3	13	* 38		
47283	20	2	9	29		53296	21	1	11	* 31		63212	25	6	12	41		
47418	20	5	8	* 31		53297	27	8	6	38		63932	29	2	11	39		
47551	15	1	12	* 27		53430	22	4	10	34		64067	29	5	10	* 41		
47552	21	8	7	34		53565	22	7	9	* 36		64201	30	8	9	44		

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x	
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)	
02010	2	0	0	*	1	16548	6	0	4	*	9	23817	8	0	6	*	13	
03266	3	1	0	*	3	16682	7	3	3	*	12	23818	14	7	1	*	20	
04523	3	2	0	*	4	16817	7	6	2	*	14	23951	9	3	5	*	16	
05058	0	7	1	*	8	16950	2	2	6	*	10	24086	9	6	4	*	18	
05645	3	0	1	*	3	17084	3	5	5	*	13	24219	4	2	8	*	14	
05779	4	3	0	*	6	17218	3	8	4	*	15	24353	5	5	7	*	17	
06180	0	5	2	*	7	17537	11	2	1	*	12	24405	17	0	1	*	15	
06315	0	8	1	*	9	17671	12	5	0	*	15	24486	0	1	11	*	13	
06901	4	1	1	*	5	17804	7	1	4	*	11	24487	5	8	6	*	19	
07035	4	4	0	*	7	17939	7	4	3	*	13	24539	18	3	0	*	18	
07302	0	3	3	*	6	18072	2	0	7	*	9	24620	0	4	10	*	15	
07437	0	6	2	*	8	18073	8	7	2	*	16	24755	1	7	9	*	18	
08157	4	2	1	*	6	18206	3	3	6	*	12	24806	13	2	3	*	16	
08291	5	5	0	*	9	18340	3	6	5	*	14	24940	14	5	2	*	19	
08424	0	1	4	*	5	18659	11	0	2	*	11	25074	9	1	6	*	15	
08559	0	4	3	*	7	18793	12	3	1	*	14	25075	14	8	1	*	21	
08693	1	7	2	*	10	18928	12	6	0	*	16	25208	9	4	5	*	17	
09279	4	0	2	*	5	19061	7	2	4	*	12	25341	4	0	9	*	13	
09413	5	3	1	*	8	19195	8	5	3	*	15	25342	10	7	4	*	20	
09548	5	6	0	*	10	19328	3	1	7	*	11	25475	5	3	8	*	16	
09681	0	2	4	*	6	19329	8	8	2	*	17	25609	5	6	7	*	18	
09815	1	5	3	*	9	19462	3	4	6	*	13	25661	18	1	1	*	17	
09949	1	8	2	*	11	19597	4	7	5	*	16	25742	0	2	11	*	14	
10535	5	1	2	*	7	19915	12	1	2	*	13	25795	18	4	0	*	19	
10670	5	4	1	*	9	20050	12	4	1	*	15	25877	1	5	10	*	17	
10803	0	0	5	*	5	20183	7	0	5	*	11	25928	13	0	4	*	15	
10804	6	7	0	*	12	20184	13	7	0	*	18	26011	1	8	9	*	19	
10937	1	3	4	*	8	20317	8	3	4	*	14	26062	14	3	3	*	18	
11071	1	6	3	*	10	20451	8	6	3	*	16	26197	14	6	2	*	20	
11390	9	0	0	*	7	20584	3	2	7	*	12	26330	9	2	6	*	16	
11792	5	2	2	*	8	20719	4	5	6	*	15	26464	10	5	5	*	19	
11926	6	5	1	*	11	20770	16	0	0	*	13	26597	5	1	9	*	15	
12059	1	1	5	*	7	20853	4	8	5	*	17	26598	10	8	4	*	21	
12060	6	8	0	*	13	21120	0	7	8	*	16	26731	5	4	8	*	17	
12193	1	4	4	*	9	21172	12	2	2	*	14	26864	0	0	12	*	13	
12327	2	7	3	*	12	21306	13	5	1	*	17	26866	6	7	7	*	20	
12646	10	1	0	*	9	21439	8	1	5	*	13	26917	18	2	1	*	18	
12914	5	0	3	*	7	21440	13	8	0	*	19	26999	1	3	11	*	16	
13048	6	3	2	*	10	21573	8	4	4	*	15	27051	19	5	0	*	21	
13182	6	6	1	*	12	21706	3	0	8	*	11	27133	1	6	10	*	18	
13315	1	2	5	*	8	21707	9	7	3	*	18	27184	14	1	4	*	17	
13449	2	5	4	*	11	21841	4	3	7	*	14	27319	14	4	3	*	19	
13584	2	8	3	*	13	21975	4	6	6	*	16	27452	9	0	7	*	15	
13903	10	2	0	*	10	22026	17	1	0	*	15	27453	15	7	2	*	22	
14170	6	1	3	*	9	22242	0	5	9	*	15	27586	10	3	6	*	18	
14304	6	4	2	*	11	22294	12	0	3	*	13	27720	10	6	5	*	20	
14437	1	0	6	*	7	22376	0	8	8	*	17	27853	5	2	9	*	16	
14438	7	7	1	*	14	22428	13	3	2	*	16	27988	6	5	8	*	19	
14571	2	3	5	*	10	22562	13	6	1	*	18	28039	18	0	2	*	17	
14706	2	6	4	*	12	22695	8	2	5	*	14	28121	1	1	12	*	15	
15025	10	0	1	*	9	22829	9	5	4	*	17	28122	6	8	7	*	21	
15159	11	3	0	*	12	22963	4	1	8	*	13	28173	19	3	1	*	20	
15426	6	2	3	*	10	22964	9	8	3	*	19	28255	1	4	11	*	17	
15560	7	5	2	*	13	23097	4	4	7	*	15	28308	19	6	0	*	22	
15694	2	1	6	*	9	23231	5	7	6	*	18	28389	2	7	10	*	20	
15695	7	8	1	*	15	23283	17	2	0	*	16	28441	14	2	4	*	18	
15828	2	4	5	*	11	23364	0	3	10	*	14	28575	15	5	3	*	21	
15962	3	7	4	*	14	23498	0	6	9	*	16	28708	10	1	7	*	17	
16281	11	1	1	*	11	23550	13	1	3	*	15	28709	15	8	2	*	23	
16415	11	4	0	*	13	23684	13	4	2	*	17	28842	10	4	6	*	19	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x
	C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)			C:	NH	O -H	= (CH ₂)	
28975	5	0	10 *	15		33466	16	6	4 *	24		38037	4	6	13 *	24	
28977	11	7	5	22		33599	11	2	8 *	20		38088	17	1	7	23	
29110	6	3	9	18		33733	12	5	7	23		38089	22	8	2 *	29	
29244	6	6	8 *	20		33785	24	0	1 *	21		38222	17	4	6 *	25	
29295	19	1	2	19		33866	7	1	11	19		38355	12	0	10 *	21	
29377	1	2	12 *	16		33867	12	8	6 *	25		38357	18	7	5	28	
29430	19	4	1 *	21		33919	25	3	0	24		38490	13	3	9	24	
29511	2	5	11	19		34000	7	4	10 *	21		38624	13	6	8 *	26	
29563	14	0	5 *	17		34135	8	7	9	24		38675	26	1	2	25	
29564	20	7	0	24		34186	20	2	3 *	22		38757	8	2	12 *	22	
29645	2	8	10 *	21		34268	3	3	13	20		38810	26	4	1 *	27	
29697	15	3	4	20		34320	21	5	2	25		38891	9	5	11	25	
29831	15	6	3 *	22		34402	3	6	12 *	22		38943	21	0	5 *	23	
29964	10	2	7 *	18		34454	16	1	6	21		38944	27	7	0	30	
30099	11	5	6	21		34455	21	8	1 *	27		39025	9	8	10 *	27	
30150	23	0	0 *	19		34588	16	4	5 *	23		39077	22	3	4	26	
30232	6	1	10	17		34721	11	0	9 *	19		39211	22	6	3 *	28	
30233	11	8	5 *	23		34722	17	7	4	26		39293	5	7	13	26	
30366	6	4	9 *	19		34855	12	3	8	22		39344	17	2	7 *	24	
30499	1	0	13 *	15		34989	12	6	7 *	24		39479	18	5	6	27	
30500	7	7	8	22		35041	25	1	1	23		39530	30	0	0 *	25	
30552	19	2	2 *	20		35122	7	2	11 *	20		39612	13	1	10	23	
30633	2	3	12	18		35175	25	4	0 *	25		39613	18	8	5 *	29	
30686	20	5	1	23		35257	8	5	10	23		39746	13	4	9 *	25	
30768	2	6	11 *	20		35308	20	0	4 *	21		39879	8	0	13 *	21	
30819	15	1	5	19		35391	8	8	9 *	25		39880	14	7	8	28	
30820	20	8	0 *	25		35442	21	3	3	24		39932	26	2	2 *	26	
30953	15	4	4 *	21		35524	3	4	13 *	21		40013	9	3	12	24	
31086	10	0	8 *	17		35577	21	6	2 *	26		40066	27	5	1	29	
31087	16	7	3	24		35658	4	7	12	24		40148	9	6	11 *	26	
31221	11	3	7	20		35710	16	2	6 *	22		40199	22	1	5	25	
31355	11	6	6 *	22		35844	17	5	5	25		40200	27	8	0 *	31	
31406	24	1	0	21		35977	12	1	9	21		40333	22	4	4 *	27	
31488	6	2	10 *	18		35978	17	8	4 *	27		40466	17	0	8 *	23	
31622	7	5	9	21		36111	12	4	8 *	23		40467	23	7	3	30	
31674	19	0	3 *	19		36244	7	0	12 *	19		40549	5	8	13 *	27	
31755	2	1	13	17		36246	13	7	7	26		40601	18	3	7	26	
31756	7	8	8 *	23		36297	25	2	1 *	24		40735	18	6	6 *	28	
31808	20	3	2	22		36379	8	3	11	22		40868	13	2	10 *	24	
31890	2	4	12 *	19		36431	26	5	0	27		41002	14	5	9	27	
31942	20	6	1	24		36513	8	6	10 *	24		41054	26	0	3 *	25	
32024	3	7	11	22		36564	21	1	4	23		41135	9	1	13	23	
32075	15	2	5 *	20		36699	21	4	3 *	25		41136	14	8	8 *	29	
32209	16	5	4	23		36780	4	5	13	23		41188	27	3	2	28	
32343	11	1	8	19		36832	16	0	7 *	21		41270	9	4	12 *	25	
32344	16	8	3 *	25		36833	22	7	2	28		41322	27	6	1	30	
32477	11	4	7 *	21		36915	4	8	12 *	25		41404	10	7	11	28	
32610	6	0	11 *	17		36966	17	3	6	24		41455	22	2	5 *	26	
32611	12	7	6	24		37100	17	6	5 *	26		41589	23	5	4	29	
32663	24	2	0 *	22		37233	12	2	9 *	22		41723	18	1	8	25	
32744	7	3	10	20		37368	13	5	8	25		41724	23	8	3 *	31	
32878	7	6	9 *	22		37419	25	0	2 *	23		41857	18	4	7 *	27	
32930	20	1	3	21		37501	8	1	12	21		41990	13	0	11 *	23	
33012	2	2	13 *	18		37502	13	8	7 *	27		41991	19	7	6	30	
33064	20	4	2 *	23		37553	26	3	1	26		42124	14	3	10	26	
33146	3	5	12	21		37635	8	4	11 *	23		42258	14	6	9 *	28	
33197	15	0	6 *	19		37688	26	6	0 *	28		42310	27	1	3	27	
33198	21	7	1	26		37769	9	7	10	26		42392	9	2	13 *	24	
33280	3	8	11 *	23		37821	21	2	4 *	24		42444	27	4	2 *	29	
33331	16	3	5	22		37955	22	5	3	27		42526	10	5	12	27	

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x
42577	22	0	6	*	25	47737	25	7	5	34		53882	21	2	11	*	32
42578	28	7	1		32	47870	20	3	9	30		54017	22	5	10		35
42660	10	8	11	*	29	48004	20	6	8	*	32	54151	22	8	9	*	37
42711	23	3	5		28	48137	15	2	12	*	28	54284	17	4	13	*	33
42846	23	6	4	*	30	48271	16	5	11		31	54418	18	7	12		36
42979	18	2	8	*	26	48323	28	0	5	*	29	54470	30	2	6	*	34
43113	19	5	7		29	48405	16	8	10	*	33	54737	26	1	9		33
43246	14	1	11		25	48457	29	3	4		32	54871	26	4	8	*	35
43247	19	8	6	*	31	48591	29	6	3	*	34	55004	21	0	12	*	31
43380	14	4	10	*	27	48673	12	7	13		32	55006	27	7	7		38
43515	15	7	9		30	48724	24	2	7	*	30	55139	22	3	11		34
43566	27	2	3	*	28	48859	25	5	6		33	55273	22	6	10	*	36
43648	10	3	13		26	48992	20	1	10		29	55540	18	5	13		35
43700	28	5	2		31	48993	25	8	5	*	35	55592	30	0	7	*	33
43782	10	6	12	*	28	49126	20	4	9	*	31	55675	18	8	12	*	37
43834	23	1	6		27	49259	15	0	13	*	27	55993	26	2	9	*	34
43835	28	8	1	*	33	49260	21	7	8		34	56128	27	5	8		37
43968	23	4	5	*	29	49393	16	3	12		30	56261	22	1	12		33
44101	18	0	9	*	25	49528	16	6	11	*	32	56262	27	8	7	*	39
44102	24	7	4		32	49579	29	1	5		31	56395	22	4	11	*	35
44235	19	3	8		28	49713	29	4	4	*	33	56529	23	7	10		38
44369	19	6	7	*	30	49846	24	0	8	*	29	56797	18	6	13	*	36
44502	14	2	11	*	26	49847	30	7	3		36	57115	26	0	10	*	33
44637	15	5	10		29	49929	12	8	13	*	33	57250	27	3	9		36
44688	27	0	4	*	27	49981	25	3	7		32	57384	27	6	8	*	38
44771	15	8	9	*	31	50115	25	6	6	*	34	57517	22	2	12	*	34
44822	28	3	3		30	50248	20	2	10	*	30	57651	23	5	11		37
44904	10	4	13	*	27	50382	21	5	9		33	57785	23	8	10	*	39
44957	28	6	2	*	32	50515	16	1	13		29	58053	19	7	13		38
45038	11	7	12		30	50516	21	8	8	*	35	58372	27	1	10		35
45090	23	2	6	*	28	50650	16	4	12	*	31	58506	27	4	9	*	37
45224	24	5	5		31	50784	17	7	11		34	58639	22	0	13	*	33
45357	19	1	9		27	50835	29	2	5	*	32	58640	28	7	8		40
45358	24	8	4	*	33	50969	30	5	4		35	58773	23	3	12		36
45491	19	4	8	*	29	51103	25	1	8		31	58908	23	6	11	*	38
45624	14	0	12	*	25	51104	30	8	3	*	37	59309	19	8	13	*	39
45626	20	7	7		32	51237	25	4	7	*	33	59628	27	2	10	*	36
45759	15	3	11		28	51370	20	0	11	*	29	59762	28	5	9		39
45893	15	6	10	*	30	51371	26	7	6		36	59895	23	1	13		35
45944	28	1	4		29	51504	21	3	10		32	59896	28	8	8	*	41
46079	28	4	3	*	31	51638	21	6	9	*	34	60030	23	4	12	*	37
46160	11	5	13		29	51772	16	2	13	*	30	60164	24	7	11		40
46212	23	0	7	*	27	51906	17	5	12		33	60750	27	0	11	*	35
46213	29	7	2		34	51957	29	0	6	*	31	60884	28	3	10		38
46295	11	8	12	*	31	52040	17	8	11	*	35	61018	28	6	9	*	40
46346	24	3	6		30	52091	30	3	5		34	61152	23	2	13	*	36
46480	24	6	5	*	32	52226	30	6	4	*	36	61286	24	5	12		39
46613	19	2	9	*	28	52359	25	2	8	*	32	61420	24	8	11	*	41
46748	20	5	8		31	52493	26	5	7		35	62006	28	1	11		37
46881	15	1	12		27	52626	21	1	11		31	62140	28	4	10	*	39
46882	20	8	7	*	33	52627	26	8	6	*	37	62275	29	7	9		42
47015	15	4	11	*	29	52760	21	4	10	*	33	62408	24	3	13		38
47149	16	7	10		32	52895	22	7	9		36	62542	24	6	12	*	40
47201	28	2	4	*	30	53028	17	3	13		32	63262	28	2	11	*	38
47335	29	5	3		33	53162	17	6	12	*	34	63397	29	5	10		41
47417	11	6	13	*	30	53214	30	1	6		33	63531	29	8	9	*	43
47468	24	1	7		29	53348	30	4	5	*	35	63664	24	4	13	*	39
47469	29	8	2	*	35	53481	25	0	9	*	31	63798	25	7	12		42
47602	24	4	6	*	31	53615	26	3	8		34	64384	28	0	12	*	37
47735	19	0	10	*	27	53749	26	6	7	*	36	64519	29	3	11		40

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	<u>Composition</u>				x	Mass Defect	<u>Composition</u>				x	Mass Defect	<u>Composition</u>				x	
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)	
01340	2	0	0	*	1	16414	2	5	5	*	12	23817	5	8	6	*	19	
02596	2	1	0	*	2	16548	3	8	4	*	15	23869	17	3	0	*	17	
03853	3	2	0	*	4	16867	11	2	1	*	12	23950	0	4	10	*	15	
04975	3	0	1	*	3	17001	11	5	0	*	14	24085	0	7	9	*	17	
05109	3	3	0	*	5	17134	6	1	4	*	10	24136	13	2	3	*	16	
05645	0	8	1	*	9	17269	7	4	3	*	13	24270	13	5	2	*	18	
06231	3	1	1	*	4	17402	2	0	7	*	9	24404	8	1	6	*	14	
06365	4	4	0	*	7	17403	7	7	2	*	15	24405	14	8	1	*	21	
06767	0	6	2	*	8	17536	2	3	6	*	11	24538	9	4	5	*	17	
07487	4	2	1	*	6	17670	3	6	5	*	14	24671	4	0	9	*	13	
07621	4	5	0	*	8	17989	11	0	2	*	11	24672	9	7	4	*	19	
07889	0	4	3	*	7	18123	11	3	1	*	13	24805	4	3	8	*	15	
08023	0	7	2	*	9	18258	12	6	0	*	16	24939	5	6	7	*	18	
08609	4	0	2	*	5	18391	7	2	4	*	12	24991	17	1	1	*	16	
08743	4	3	1	*	7	18525	7	5	3	*	14	25072	0	2	11	*	14	
08878	5	6	0	*	10	18658	2	1	7	*	10	25125	18	4	0	*	19	
09011	0	2	4	*	6	18659	8	8	2	*	17	25207	0	5	10	*	16	
09145	0	5	3	*	8	18792	3	4	6	*	13	25258	13	0	4	*	15	
09279	1	8	2	*	11	18927	3	7	5	*	15	25341	1	8	9	*	19	
09865	4	1	2	*	6	19245	11	1	2	*	12	25392	13	3	3	*	17	
10000	5	4	1	*	9	19380	12	4	1	*	15	25527	14	6	2	*	20	
10133	0	0	5	*	5	19513	7	0	5	*	11	25660	9	2	6	*	16	
10134	5	7	0	*	11	19514	12	7	0	*	17	25794	9	5	5	*	18	
10267	0	3	4	*	7	19647	7	3	4	*	13	25927	4	1	9	*	14	
10401	1	6	3	*	10	19781	8	6	3	*	16	25928	10	8	4	*	21	
10720	9	0	0	*	7	19914	3	2	7	*	12	26061	5	4	8	*	17	
11122	5	2	2	*	8	20049	3	5	6	*	14	26194	0	0	12	*	13	
11256	5	5	1	*	10	20100	16	0	0	*	13	26196	5	7	7	*	19	
11389	0	1	5	*	6	20183	4	8	5	*	17	26247	18	2	1	*	18	
11390	6	8	0	*	13	20502	12	2	2	*	14	26329	0	3	11	*	15	
11523	1	4	4	*	9	20636	12	5	1	*	16	26381	18	5	0	*	20	
11657	1	7	3	*	11	20769	7	1	5	*	12	26463	1	6	10	*	18	
11976	9	1	0	*	8	20770	13	8	0	*	19	26514	13	1	4	*	16	
12244	5	0	3	*	7	20903	8	4	4	*	15	26649	14	4	3	*	19	
12378	5	3	2	*	9	21036	3	0	8	*	11	26782	9	0	7	*	15	
12512	6	6	1	*	12	21037	8	7	3	*	17	26783	14	7	2	*	21	
12645	1	2	5	*	8	21171	3	3	7	*	13	26916	9	3	6	*	17	
12779	1	5	4	*	10	21305	4	6	6	*	16	27050	10	6	5	*	20	
12914	2	8	3	*	13	21356	16	1	0	*	14	27183	5	2	9	*	16	
13233	10	2	0	*	10	21624	12	0	3	*	13	27318	5	5	8	*	18	
13500	5	1	3	*	8	21706	0	8	8	*	17	27369	18	0	2	*	17	
13634	6	4	2	*	11	21758	12	3	2	*	15	27451	0	1	12	*	14	
13767	1	0	6	*	7	21892	13	6	1	*	18	27452	6	8	7	*	21	
13768	6	7	1	*	13	22025	8	2	5	*	14	27503	18	3	1	*	19	
13901	1	3	5	*	9	22159	8	5	4	*	16	27585	1	4	11	*	17	
14036	2	6	4	*	12	22293	3	1	8	*	12	27638	19	6	0	*	22	
14355	10	0	1	*	9	22294	9	8	3	*	19	27719	1	7	10	*	19	
14489	10	3	0	*	11	22427	4	4	7	*	15	27771	14	2	4	*	18	
14756	6	2	3	*	10	22561	4	7	6	*	17	27905	14	5	3	*	20	
14890	6	5	2	*	12	22613	17	2	0	*	16	28038	9	1	7	*	16	
15024	1	1	6	*	8	22828	0	6	9	*	16	28039	15	8	2	*	23	
15025	7	8	1	*	15	22880	12	1	3	*	14	28172	10	4	6	*	19	
15158	2	4	5	*	11	23014	13	4	2	*	17	28305	5	0	10	*	15	
15292	2	7	4	*	13	23147	8	0	6	*	13	28307	10	7	5	*	21	
15611	10	1	1	*	10	23148	13	7	1	*	19	28440	5	3	9	*	17	
15745	11	4	0	*	13	23281	8	3	5	*	15	28574	6	6	8	*	20	
15878	6	0	4	*	9	23416	9	6	4	*	18	28625	18	1	2	*	18	
16012	6	3	3	*	11	23549	4	2	8	*	14	28707	1	2	12	*	16	
16147	7	6	2	*	14	23683	4	5	7	*	16	28760	19	4	1	*	21	
16280	2	2	6	*	10	23735	17	0	1	*	15	28841	1	5	11	*	18	

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂) x					Mass Defect	Composition C: NH 0 -H -(CH ₂) x					Mass Defect	Composition C: NH 0 -H -(CH ₂) x				
28893	14	0	5	17		33465	7	7	9	*	23	38005	25	1	2	*	24
28894	19	7	0	*	23	33516	20	2	3		22	38087	8	2	12		22
28975	2	8	10		21	33598	2	3	13	*	19	38140	26	4	1		27
29027	14	3	4	*	19	33650	20	5	2	*	24	38221	8	5	11	*	24
29161	15	6	3		22	33732	3	6	12		22	38273	21	0	5		23
29294	10	2	7		18	33784	15	1	6	*	20	38274	26	7	0	*	29
29429	10	5	6	*	20	33785	21	8	1		27	38355	9	8	10		27
29480	23	0	0		19	33918	16	4	5		23	38407	21	3	4	*	25
29562	5	1	10	*	16	34051	11	0	9		19	38541	22	6	3		28
29563	11	8	5		23	34052	16	7	4	*	25	38623	4	7	13	*	25
29696	6	4	9		19	34185	11	3	8	*	21	38674	17	2	7		24
29829	1	0	13		15	34319	12	6	7		24	38809	17	5	6	*	26
29830	6	7	8	*	21	34371	24	1	1	*	22	38860	30	0	0		25
29882	19	2	2		20	34452	7	2	11		20	38942	12	1	10	*	22
29963	1	3	12	*	17	34505	25	4	0		25	38943	18	8	5		29
30016	19	5	1	*	22	34587	7	5	10	*	22	39076	13	4	9		25
30098	2	6	11		20	34638	20	0	4		21	39209	8	0	13		21
30149	14	1	5	*	18	34721	8	8	9		25	39210	13	7	8	*	27
30150	20	8	0		25	34772	20	3	3	*	23	39262	26	2	2		26
30283	15	4	4		21	34854	3	4	13		21	39343	8	3	12	*	23
30416	10	0	8		17	34907	21	6	2		26	39396	26	5	1	*	28
30417	15	7	3	*	23	34988	3	7	12	*	23	39478	9	6	11		26
30551	10	3	7	*	19	35040	16	2	6		22	39529	21	1	5	*	24
30685	11	6	6		22	35174	16	5	5	*	24	39530	27	8	0		31
30736	23	1	0	*	20	35307	11	1	9	*	20	39663	22	4	4		27
30818	6	2	10		18	35308	17	8	4		27	39796	17	0	8		23
30952	6	5	9	*	20	35441	12	4	8		23	39797	22	7	3	*	29
31004	19	0	3		19	35574	7	0	12		19	39879	5	8	13		27
31085	1	1	13	*	16	35576	12	7	7	*	25	39931	17	3	7	*	25
31086	7	8	8		23	35627	25	2	1		24	40065	18	6	6		28
31138	19	3	2	*	21	35709	7	3	11	*	21	40116	30	1	0	*	26
31220	2	4	12		19	35761	25	5	0	*	26	40198	13	2	10		24
31272	20	6	1		24	35843	8	6	10		24	40332	13	5	9	*	26
31354	2	7	11	*	21	35894	20	1	4	*	22	40384	26	0	3		25
31405	15	2	5		20	36029	21	4	3		25	40465	8	1	13	*	22
31539	15	5	4	*	22	36110	3	5	13	*	22	40466	14	8	8		29
31673	10	1	8	*	18	36162	16	0	7		21	40518	26	3	2	*	27
31674	16	8	3		25	36163	21	7	2	*	27	40600	9	4	12		25
31807	11	4	7		21	36245	4	8	12		25	40652	27	6	1		30
31940	6	0	11		17	36296	16	3	6	*	23	40734	9	7	11	*	27
31941	11	7	6	*	23	36430	17	6	5		26	40785	22	2	5		26
31993	24	2	0		22	36563	12	2	9		22	40919	22	5	4	*	28
32074	6	3	10	*	19	36698	12	5	8	*	24	41053	17	1	8	*	24
32208	7	6	9		22	36749	25	0	2		23	41054	23	8	3		31
32260	19	1	3	*	20	36831	7	1	12	*	20	41187	18	4	7		27
32342	2	2	13		18	36832	13	8	7		27	41320	13	0	11		23
32394	20	4	2		23	36883	25	3	1	*	25	41321	18	7	6	*	29
32476	2	5	12	*	20	36965	8	4	11		23	41454	13	3	10	*	25
32527	15	0	6		19	37018	26	6	0		28	41588	14	6	9		28
32528	20	7	1	*	25	37099	8	7	10	*	25	41640	26	1	3	*	26
32610	3	8	11		23	37151	21	2	4		24	41722	9	2	13		24
32661	15	3	5	*	21	37285	21	5	3	*	26	41774	27	4	2		29
32796	16	6	4		24	37367	4	6	13		24	41856	9	5	12	*	26
32929	11	2	8		20	37418	16	1	7	*	22	41907	22	0	6		25
33063	11	5	7	*	22	37419	22	8	2		29	41908	27	7	1	*	31
33115	24	0	1		21	37552	17	4	6		25	41990	10	8	11		29
33196	6	1	11	*	18	37685	12	0	10		21	42041	22	3	5	*	27
33197	12	8	6		25	37687	17	7	5	*	27	42176	23	6	4		30
33249	24	3	0	*	23	37820	12	3	9	*	23	42309	18	2	8		26
33330	7	4	10		21	37954	13	6	8		26	42443	18	5	7	*	28

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x
42576	13	1	11	• 24		47787	28	3	4	• 31		53934	30	5	5	* 36	
42577	19	8	6	31		47921	29	6	3	34		54067	25	1	9	* 32	
42710	14	4	10	27		48003	11	7	13	* 31		54201	26	4	8	35	
42845	14	7	9	• 29		48054	24	2	7	30		54334	21	0	12	31	
42896	27	2	3	28		48189	24	5	6	• 32		54336	26	7	7	* 37	
42978	9	3	13	• 25		48322	19	1	10	* 28		54469	21	3	11	* 33	
43030	27	5	2	• 30		48323	25	8	5	35		54603	22	6	10	36	
43112	10	6	12	28		48456	20	4	9	31		54870	17	5	13	• 34	
43164	22	1	6	• 26		48589	15	0	13	27		54922	30	0	7	33	
43165	28	8	1	33		48590	20	7	8	• 33		55005	18	8	12	37	
43298	23	4	5	29		48723	15	3	12	• 29		55056	30	3	6	* 35	
43431	18	0	9	25		48858	16	6	11	32		55323	26	2	9	34	
43432	23	7	4	• 31		48909	28	1	5	* 30		55458	26	5	8	* 36	
43565	18	3	8	* 27		49043	29	4	4	33		55591	21	1	12	* 32	
43699	19	6	7	30		49176	24	0	8	29		55592	27	8	7	39	
43832	14	2	11	26		49177	29	7	3	* 35		55725	22	4	11	35	
43967	14	5	10	• 28		49259	12	8	13	33		55859	22	7	10	• 37	
44018	27	0	4	27		49311	24	3	7	* 31		56127	18	6	13	36	
44101	15	8	9	31		49445	25	6	6	34		56178	30	1	7	* 34	
44152	27	3	3	* 29		49578	20	2	10	30		56445	26	0	10	33	
44234	10	4	13	27		49712	20	5	9	* 32		56580	26	3	9	* 35	
44287	28	6	2	32		49845	15	1	13	* 28		56714	27	6	8	38	
44368	10	7	12	* 29		49846	21	8	8	35		56847	22	2	12	34	
44420	23	2	6	28		49980	16	4	12	31		56981	22	5	11	* 36	
44554	23	5	5	* 30		50114	16	7	11	* 33		57115	23	8	10	39	
44687	18	1	9	• 26		50165	29	2	5	32		57383	18	7	13	• 37	
44688	24	8	4	33		50299	29	5	4	* 34		57702	26	1	10	• 34	
44821	19	4	8	29		50433	24	1	8	* 30		57836	27	4	9	37	
44954	14	0	12	25		50434	30	8	3	37		57969	22	0	13	33	
44956	19	7	7	* 31		50567	25	4	7	33		57970	27	7	8	* 39	
45089	14	3	11	* 27		50700	20	0	11	29		58103	22	3	12	* 35	
45223	15	6	10	30		50701	25	7	6	* 35		58238	23	6	11	38	
45274	27	1	4	* 28		50834	20	3	10	* 31		58639	19	8	13	39	
45409	28	4	3	31		50968	21	6	9	34		58958	27	2	10	36	
45490	10	5	13	* 28		51102	16	2	13	30		59092	27	5	9	* 38	
45542	23	0	7	27		51236	16	5	12	* 32		59225	22	1	13	* 34	
45543	28	7	2	* 33		51287	29	0	6	31		59226	28	8	8	41	
45625	11	8	12	31		51370	17	8	11	35		59360	23	4	12	37	
45676	23	3	6	* 29		51421	29	3	5	* 33		59494	23	7	11	* 39	
45810	24	6	5	32		51556	30	6	4	36		60080	27	0	11	35	
45943	19	2	9	28		51689	25	2	8	32		60214	27	3	10	* 37	
46078	19	5	8	* 30		51823	25	5	7	* 34		60348	28	6	9	40	
46211	14	1	12	* 26		51956	20	1	11	* 30		60482	23	2	13	36	
46212	20	8	7	33		51957	26	8	6	37		60616	23	5	12	• 38	
46345	15	4	11	29		52090	21	4	10	33		60750	24	8	11	41	
46479	15	7	10	* 31		52225	21	7	9	* 35		61336	27	1	11	* 36	
46531	28	2	4	30		52358	16	3	13	* 31		61470	28	4	10	39	
46665	28	5	3	* 32		52492	17	6	12	34		61605	28	7	9	* 41	
46747	11	6	13	30		52544	29	1	6	* 32		61738	23	3	13	* 37	
46798	23	1	7	* 28		52678	30	4	5	35		61872	24	6	12	40	
46799	29	8	2	35		52811	25	0	9	31		62592	28	2	11	38	
46932	24	4	6	31		52812	30	7	4	* 37		62727	28	5	10	* 40	
47065	19	0	10	27		52945	25	3	8	* 33		62861	29	8	9	43	
47067	24	7	5	* 33		53079	26	6	7	36		62994	24	4	13	39	
47200	19	3	9	* 29		53212	21	2	11	32		63128	24	7	12	* 41	
47334	20	6	8	32		53347	21	5	10	* 34		63714	28	0	12	37	
47467	15	2	12	28		53481	22	8	9	37		63849	28	3	11	* 39	
47601	15	5	11	* 30		53614	17	4	13	33		63983	29	6	10	42	
47653	28	0	5	29		53748	17	7	12	* 35		64250	24	5	13	* 40	
47735	16	8	10	33		53800	30	2	6	34		64385	25	8	12	43	

Table 2.

MASS DEFECTS ON CH₂=14 SCALE

Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x	Mass Defect	Composition C: NH 0 -H -(CH ₂)				x
00670	1	0	0	*	0	16599	6	4	3	*	12	23868	8	4	5	*	16
01926	2	1	0	*	2	16732	1	0	7	*	8	24001	3	0	9	*	12
03183	2	2	0	*	3	16733	7	7	2	*	15	24002	9	7	4	*	19
04305	2	0	1	*	2	16866	2	3	6	*	11	24135	4	3	8	*	15
04439	3	3	0	*	5	17000	2	6	5	*	13	24269	4	6	7	*	17
05561	3	1	1	*	4	17319	10	0	2	*	10	24321	17	1	1	*	16
05695	3	4	0	*	6	17453	11	3	1	*	13	24455	17	4	0	*	18
06817	3	2	1	*	5	17588	11	6	0	*	15	24537	0	5	10	*	16
06951	4	5	0	*	8	17721	6	2	4	*	11	24588	12	0	4	*	14
07353	0	7	2	*	9	17855	7	5	3	*	14	24671	0	8	9	*	18
07939	3	0	2	*	4	17988	2	1	7	*	10	24722	13	3	3	*	17
08073	4	3	1	*	7	17989	7	8	2	*	16	24857	13	6	2	*	19
08208	4	6	0	*	9	18122	2	4	6	*	12	24990	8	2	6	*	15
08475	0	5	3	*	8	18257	3	7	5	*	15	25124	9	5	5	*	18
08609	0	8	2	*	10	18575	11	1	2	*	12	25257	4	1	9	*	14
09195	4	1	2	*	6	18710	11	4	1	*	14	25258	9	8	4	*	20
09330	4	4	1	*	8	18843	6	0	5	*	10	25391	4	4	8	*	16
09464	5	7	0	*	11	18844	12	7	0	*	17	25526	5	7	7	*	19
09597	0	3	4	*	7	18977	7	3	4	*	13	25577	17	2	1	*	17
09731	0	6	3	*	9	19111	7	6	3	*	15	25659	0	3	11	*	15
10050	8	0	0	*	6	19244	2	2	7	*	11	25711	18	5	0	*	20
10452	4	2	2	*	7	19379	3	5	6	*	14	25793	0	6	10	*	17
10586	5	5	1	*	10	19430	15	0	0	*	12	25844	13	1	4	*	16
10719	0	1	5	*	6	19513	3	8	5	*	16	25979	13	4	3	*	18
10720	5	8	0	*	12	19832	11	2	2	*	13	26112	8	0	7	*	14
10853	0	4	4	*	8	19966	12	5	1	*	16	26113	14	7	2	*	21
10987	1	7	3	*	11	20099	7	1	5	*	12	26246	9	3	6	*	17
11306	9	1	0	*	8	20100	12	8	0	*	18	26380	9	6	5	*	19
11574	4	0	3	*	6	20233	7	4	4	*	14	26513	4	2	9	*	15
11708	5	3	2	*	9	20366	2	0	8	*	10	26648	5	5	8	*	18
11842	5	6	1	*	11	20367	8	7	3	*	17	26699	17	0	2	*	16
11975	0	2	5	*	7	20501	3	3	7	*	13	26781	0	1	12	*	14
12109	1	5	4	*	10	20635	3	6	6	*	15	26782	5	8	7	*	20
12244	1	8	3	*	12	20686	16	1	0	*	14	26833	18	3	1	*	19
12563	9	2	0	*	9	20954	11	0	3	*	12	26915	0	4	11	*	16
12830	5	1	3	*	8	21088	12	3	2	*	15	26968	18	6	0	*	21
12964	5	4	2	*	10	21222	12	6	1	*	17	27049	1	7	10	*	19
13097	0	0	6	*	6	21355	7	2	5	*	13	27101	13	2	4	*	17
13098	6	7	1	*	13	21489	8	5	4	*	16	27235	14	5	3	*	20
13231	1	3	5	*	9	21623	3	1	8	*	12	27368	9	1	7	*	16
13366	1	6	4	*	11	21624	8	8	3	*	18	27369	14	8	2	*	22
13685	9	0	1	*	8	21757	3	4	7	*	14	27502	9	4	6	*	18
13819	10	3	0	*	11	21891	4	7	6	*	17	27635	4	0	10	*	14
14086	5	2	3	*	9	21943	16	2	0	*	15	27637	10	7	5	*	21
14220	6	5	2	*	12	22210	12	1	3	*	14	27770	5	3	9	*	17
14354	1	1	6	*	8	22344	12	4	2	*	16	27904	5	6	8	*	19
14355	6	8	1	*	14	22477	7	0	6	*	12	27955	18	1	2	*	18
14488	1	4	5	*	10	22478	13	7	1	*	19	28037	0	2	12	*	15
14622	2	7	4	*	13	22611	8	3	5	*	15	28090	18	4	1	*	20
14941	10	1	1	*	10	22746	8	6	4	*	17	28171	1	5	11	*	18
15075	10	4	0	*	12	22879	3	2	8	*	13	28223	13	0	5	*	16
15208	5	0	4	*	8	23013	4	5	7	*	16	28224	19	7	0	*	23
15342	6	3	3	*	11	23065	16	0	1	*	14	28305	1	8	10	*	20
15477	6	6	2	*	13	23147	4	8	6	*	18	28357	14	3	4	*	19
15610	1	2	6	*	9	23199	17	3	0	*	17	28491	14	6	3	*	21
15744	2	5	5	*	12	23415	0	7	9	*	17	28624	9	2	7	*	17
15878	2	8	4	*	14	23466	12	2	3	*	15	28759	10	5	6	*	20
16197	10	2	1	*	11	23600	13	5	2	*	18	28810	22	0	0	*	18
16331	11	5	0	*	14	23734	8	1	6	*	14	28892	5	1	10	*	16
16464	6	1	4	*	10	23735	13	8	1	*	20	28893	10	8	5	*	22

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition x				Mass Defect	Composition x				Mass Defect	Composition x			
	C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)		C:	NH	O -H	= (CH ₂)
29026	5	4	9 *	18	33515	11	3	8	21	38004	16	2	7 *	23
29159	0	0	13 *	14	33649	11	6	7 *	23	38139	17	5	6	26
29160	6	7	8	21	33701	24	1	1	22	38190	29	0	0 *	24
29212	18	2	2	19	33782	6	2	11 *	19	38272	12	1	10	22
29293	1	3	12	17	33835	24	4	0	24	38273	17	8	5 *	28
29346	19	5	1	22	33917	7	5	10	22	38406	12	4	9 *	24
29428	1	6	11 *	19	33968	19	0	4	20	38539	7	0	13 *	20
29479	14	1	5	18	34051	7	8	9 *	24	38540	13	7	8	27
29480	19	8	0	24	34102	20	3	3	23	38592	25	2	2 *	25
29613	14	4	4	20	34184	2	4	13 *	20	38673	8	3	12	23
29746	9	0	8 *	16	34237	20	6	2	25	38726	26	5	1	28
29747	15	7	3	23	34318	3	7	12	23	38808	8	6	11 *	25
29881	10	3	7	19	34370	15	2	6 *	21	38859	21	1	5	24
30015	10	6	6 *	21	34504	16	5	5	24	38860	26	8	0 *	30
30066	23	1	0	20	34637	11	1	9	20	38993	21	4	4 *	26
30148	5	2	10 *	17	34638	16	8	4 *	26	39126	16	0	8 *	22
30282	6	5	9	20	34771	11	4	8 *	22	39127	22	7	3	29
30334	18	0	3	18	34904	6	0	12 *	18	39209	4	8	13 *	26
30415	1	1	13	16	34906	12	7	7	25	39261	17	3	7	25
30416	6	8	8 *	22	34957	24	2	1	23	39395	17	6	6 *	27
30468	19	3	2	21	35039	7	3	11	21	39446	30	1	0	26
30550	1	4	12 *	18	35091	25	5	0	26	39528	12	2	10 *	23
30602	19	6	1	23	35173	7	6	10 *	23	39662	13	5	9	26
30684	2	7	11	21	35224	20	1	4	22	39714	25	0	3 *	24
30735	14	2	5 *	19	35359	20	4	3	24	39795	8	1	13	22
30869	15	5	4	22	35440	3	5	13	22	39796	13	8	8 *	28
31003	10	1	8	18	35492	15	0	7	20	39848	26	3	2	27
31004	15	8	3	24	35493	21	7	2	27	39930	8	4	12 *	24
31137	10	4	7	20	35575	3	8	12	24	39982	26	6	1 *	29
31270	5	0	11	16	35626	16	3	6	23	40064	9	7	11	27
31271	11	7	6	23	35760	16	6	5	25	40115	21	2	5 *	25
31323	23	2	0	21	35893	11	2	9	21	40249	22	5	4	28
31404	6	3	10	19	36028	12	5	8	24	40383	17	1	8	24
31538	6	6	9 *	21	36079	24	0	2	22	40384	22	8	3 *	30
31590	19	1	3	20	36161	7	1	12	20	40517	17	4	7 *	26
31672	1	2	13 *	17	36162	12	8	7	26	40650	12	0	11 *	22
31724	19	4	2	22	36213	25	3	1	25	40651	18	7	6	29
31806	2	5	12	20	36295	7	4	11	22	40703	30	2	0 *	27
31857	14	0	6	18	36348	25	6	0	27	40784	13	3	10	25
31858	20	7	1	25	36429	8	7	10	25	40918	13	6	9 *	27
31940	2	8	11	22	36481	20	2	4	23	40970	26	1	3	26
31991	15	3	5	21	36615	21	5	3	26	41052	8	2	13 *	23
32126	15	6	4	23	36697	3	6	13	23	41104	26	4	2	28
32259	10	2	8	19	36748	16	1	7	22	41186	9	5	12	26
32393	11	5	7	22	36749	21	8	2	28	41237	21	0	6 *	24
32445	23	0	1	20	36882	16	4	6	24	41238	27	7	1	31
32526	6	1	11	18	37015	11	0	10	20	41320	9	8	11 *	28
32527	11	8	6	24	37017	17	7	5	27	41371	22	3	5	27
32579	24	3	0	23	37150	12	3	9	23	41506	22	6	4 *	29
32660	6	4	10	20	37284	12	6	8	25	41639	17	2	8 *	25
32795	7	7	9	23	37335	25	1	2	24	41773	18	5	7	28
32846	19	2	3	21	37417	7	2	12 *	21	41825	30	0	1 *	26
32928	2	3	13	19	37470	25	4	1	26	41906	13	1	11	24
32980	20	5	2	24	37551	8	5	11	24	41907	18	8	6 *	30
33062	2	6	12	21	37603	20	0	5	22	42040	13	4	10 *	26
33114	15	1	6	20	37604	26	7	0	29	42175	14	7	9	29
33115	20	8	1	26	37685	8	8	10	26	42226	26	2	3 *	27
33248	15	4	5	22	37737	21	3	4	25	42308	9	3	13	25
33381	10	0	9	18	37871	21	6	3	27	42360	27	5	2	30
33382	16	7	4	25	37953	4	7	13	25	42442	9	6	12 *	27

Table 2.

MASS DEFECTS ON CH₂-14 SCALE

Mass Defect	Composition				x	Mass Defect	Composition				x	Mass Defect	Composition				x	
	C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)		C:	NH	O	-H	-(CH ₂)	
42494	22	1	6	26		47919	14	0	13	• 26		54200	17	5	13	• 34		
42495	27	8	1	• 32		47920	20	7	8	33		54252	29	0	7	• 32		
42628	22	4	5	• 28		48053	15	3	12	29		54335	17	8	12	• 36		
42761	17	0	9	• 24		48188	15	6	11	• 31		54386	30	3	6	35		
42762	23	7	4	31		48239	28	1	5	30		54520	30	6	5	• 37		
42895	18	3	8	27		48373	28	4	4	• 32		54653	25	2	9	• 33		
43029	18	6	7	• 29		48506	23	0	8	• 28		54788	26	5	8	36		
43162	13	2	11	• 25		48507	29	7	3	35		54921	21	1	12	32		
43297	14	5	10	28		48589	11	8	13	• 32		54922	26	8	7	• 38		
43348	26	0	4	• 26		48641	24	3	7	31		55055	21	4	11	• 34		
43431	14	8	9	• 30		48775	24	6	6	• 33		55189	22	7	10	37		
43482	27	3	3	29		48908	19	2	10	• 29		55457	17	6	13	• 35		
43564	9	4	13	• 26		49042	20	5	9	32		55508	30	1	7	34		
43617	27	6	2	• 31		49175	15	1	13	28		55642	30	4	6	• 36		
43698	10	7	12	29		49176	20	8	8	• 34		55775	25	0	10	• 32		
43750	22	2	6	• 27		49310	15	4	12	• 30		55910	26	3	9	35		
43884	23	5	5	30		49444	16	7	11	33		56044	26	6	8	• 37		
44017	18	1	9	26		49495	28	2	5	• 31		56177	21	2	12	• 33		
44018	23	8	4	• 32		49629	29	5	4	34		56311	22	5	11	36		
44151	18	4	8	• 28		49763	24	1	8	30		56445	22	8	10	• 38		
44284	13	0	12	• 24		49764	29	8	3	• 36		56713	18	7	13	37		
44286	19	7	7	31		49897	24	4	7	• 32		56764	30	2	7	• 35		
44419	14	3	11	27		50030	19	0	11	• 28		57032	26	1	10	34		
44553	14	6	10	• 29		50031	25	7	6	35		57166	26	4	9	• 36		
44604	27	1	4	28		50164	20	3	10	31		57299	21	0	13	• 32		
44739	27	4	3	• 30		50298	20	6	9	• 33		57300	27	7	8	39		
44820	10	5	13	28		50432	15	2	13	• 29		57433	22	3	12	35		
44872	22	0	7	• 26		50566	16	5	12	32		57568	22	6	11	• 37		
44873	28	7	2	33		50617	28	0	6	• 30		57886	30	0	8	• 34		
44955	10	8	12	• 30		50700	16	8	11	• 34		57969	18	8	13	• 38		
45006	23	3	6	29		50751	29	3	5	33		58288	26	2	10	• 35		
45140	23	6	5	• 31		50886	29	6	4	• 35		58422	27	5	9	38		
45273	18	2	9	• 27		51019	24	2	8	• 31		58555	22	1	13	34		
45408	19	5	8	30		51153	25	5	7	34		58556	27	8	8	• 40		
45541	14	1	12	26		51286	20	1	11	30		58690	22	4	12	• 36		
45542	19	8	7	• 32		51287	25	8	6	• 36		58824	23	7	11	39		
45675	14	4	11	• 28		51420	20	4	10	• 32		59410	26	0	11	• 34		
45809	15	7	10	31		51555	21	7	9	35		59544	27	3	10	37		
45861	27	2	4	• 29		51688	16	3	13	31		59678	27	6	9	• 39		
45995	28	5	3	32		51822	16	6	12	• 33		59812	22	2	13	• 35		
46077	10	6	13	• 29		51874	29	1	6	32		59946	23	5	12	38		
46128	23	1	7	28		52008	29	4	5	• 34		60080	23	8	11	• 40		
46129	28	8	2	• 34		52141	24	0	9	• 30		60666	27	1	11	36		
46262	23	4	6	• 30		52142	30	7	4	37		60800	27	4	10	• 38		
46395	18	0	10	• 26		52275	25	3	8	33		60935	28	7	9	41		
46397	24	7	5	33		52409	25	6	7	• 35		61068	23	3	13	37		
46530	19	3	9	29		52542	20	2	11	• 31		61202	23	6	12	• 39		
46664	19	6	8	• 31		52677	21	5	10	34		61922	27	2	11	• 37		
46797	14	2	12	• 27		52811	21	8	9	• 36		62057	28	5	10	40		
46931	15	5	11	30		52944	16	4	13	• 32		62191	28	8	9	• 42		
46983	27	0	5	• 28		53078	17	7	12	35		62324	23	4	13	• 38		
47065	15	8	10	• 32		53130	29	2	6	• 33		62458	24	7	12	41		
47117	28	3	4	31		53264	30	5	5	36		63044	27	0	12	• 36		
47251	28	6	3	• 33		53397	25	1	9	32		63179	28	3	11	39		
47333	11	7	13	31		53398	30	8	4	• 38		63313	28	6	10	• 41		
47384	23	2	7	• 29		53531	25	4	8	• 34		63580	24	5	13	40		
47519	24	5	6	32		53664	20	0	12	• 30		63715	24	8	12	• 42		
47652	19	1	10	28		53666	26	7	7	37		64301	28	1	12	38		
47653	24	8	5	• 34		53799	21	3	11	33		64435	28	4	11	• 40		
47786	19	4	9	• 30		53933	21	6	10	• 35		64569	29	7	10	43		

NAME	FUNCTIONAL GROUP	CONTRIBUTION ¹ TO INTEGER RESIDUE	CONTRIBUTION ¹ TO MASS DEFECT	TO BASE MASS DEFECT	12C=12 SCALE	MASS CLASS	RESIDUE OF COMPOUND	MASS DEFECT OF COMPOUND
-ANE	2H-			H ₂	2.01565	2		-.01339
-ANYL (RADICAL)	H-	-1	.00669	H-	1.0078252	1		.00669
-AMINE	NH	1	.00586	NH ₃	17.026549	3		-.00753
-OL OR ETHER	O	2	.02294	H ₂ O	18.010565	4		.00955
-AL OR -ONE OR -ENOL	C=O	0	.03634	CH ₂ O	30.010565	2		.02295
-ENE OR RING	-C=	-2	.01339	CH ₂ =CH ₂	28.03130	0		.00000
-OIC ACID	COO	2	.05928	HCOOH	46.005480	4		.04589
AMIDE	CONH	1	.04220	HCONH ₂	45.021464	3		.02881
-THIOL OR THIOETHER	S	4	.06363	H ₂ S	33.98772	6		.05023
AMINO ACID	NHCOO	3	.06514	NH ₂ COOH	61.016379	5		.05175
-DIOL	2O	4	.04588	H ₂ O ₂	34.005480	6		.03249
-TRIOL	3O	6	.06883	C ₃ H ₅ (OH) ₃	92.047345	8		.05544
BENZENE	4C=	-8	.05359	C ₆ H ₆	42.046950	8		.04020
HYDROXY ACID	OOCO	4	.08223	H ₂ CO ₃	62.000395	6		.06884
PHOSPHORIC ESTER	OPO ₃	12	.14586	H ₃ PO ₄	97.97693	0		.13247
SULFONIC ACID	SO ₃	10	.13246	H ₂ SO ₃	81.97246	12		.11907
SULFATE ESTER	OSO ₃	12	.15540	H ₂ SO ₄	97.96738	0		.14201
NITRILE	CN	11	.02595	HCN	27.01090	12		.01926
CYANATE	CNO	13	.04890	HCNO	43.00581	0		.04221
THIOCYANATE	CNS	1	.08958	HCNS	58.98297	2		.08289
CHLORIDE	35 Cl	6	.07018	HCl	35.97668	7		.06349
CHLORIDE	37 Cl	8	.07537	HCl	37.97372	9		.06868
BROMIDE	79 Br	8	.16977	HBr	79.92617	9		.16308
BROMIDE	81 Br	10	.17401	HBr	81.92416	11		.16732
FLUORINE	F	5	.02283	HF	20.0062	6		.01614

Table 3. Mass Defects (CH₂=14 scale) of Simple Functions

1as additive perturbation of a compound previously calculated.